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BRANCH I.

PART I.

ORIGINAL COMMUNICATIONS.

FOR THE FARMER'S MAGAZINE.

*A General View of the Corn Trade and Corn Laws of Great Britain.**

INTRODUCTION.

THE importance of the ſubject is generally acknowledged, and the writer has no intereſted views in drawing up this paper. His object is, to compreſs, within as narrow limits as poſſible, the principal facts and arguments; to point out the defects of our preſent corn laws, in the mildeſt, and to propoſe new regulations, in the ſimpleſt language.

The laſt two unfruitful ſeaſons occaſioned our legiſlators to pay particular attention to this ſubject; and a maſs of valuable information has been collected by the Corn Committees of both Houſes of Parliament, who merit the higheſt approbation of their country. What in their reports, and in other public papers printed by their order (particularly in that moſt valuable paper, 'The Accounts of Corn, Flour, &c. from 1697 to 1800),' is given in various articles of detail, will here be found arranged under general heads. Where illuſtration appears to be neceſſary, a few obſervations will be ſubjoined; and facts will be ſtated, minutely, where any particular inference is to be drawn from them. Where calculations are important, and the reſult of them deſerves to be remembered, this will be expreſſed in round numbers, in words, and the preciſe ſum will be alſo ſpecified in figures.

* Communicated by the Reverend Mr Skene Keith.

§ I. *Of the Quantity of Corn both exported and imported from* 1697, *to* 1801, *inclusive.*

The following table exhibits at one view our whole exports and imports during 105 years.

1. Kind of Grain.	2. No. of Qrs. exported.	3. Ditto imported.	4. Excess of exports.	5. Ditto of imports.
Wheat, flour, &c.	18,196,028	10,957,490	7,238,538	———
Barley, malt, &c.	20,341,389	2,042,448	18,298,941	———
Oats and Oatmeal	1,319,046	16,401,281	———	15,082,235
Rye and Ryemeal	2,709,761	1,323,120	1,386,641	———
Peas and Beans	692,060	1,194,058	———	501,998

From this table it appears, that we have exported much more than we have imported, in the course of the last 105 years; the balance in our favour being above seven millions of quarters, or nearly a year's supply of wheat; above eighteen millions, or nearly four year's supply of barley, and above one million of rye; while the only articles against us are about fifteen millions of quarters, or two years supply of oats, and half a million of quarters of peas and beans.

After computing both the quantity and value of the different kinds of corn, it will be found, that though we have imported about two years supply of oats, and nearly half a million of quarters of peas and beans, more than we have exported of these articles, yet, we have, in the course of 105 years, spared nearly a year's supply of wheat, and as much more than a year's supply of barley and rye, as was equal in real value to all the oats, peas, and beans, which we imported.

It deserves, however, to be noticed, that though we have exported much more than we imported, in a whole century, the balance has been against us for the last 35 years. It is necessary here to be more particular, and, by dividing the whole into periods of 35 years each, to show the rise, progress, and decline of the corn trade, formerly so beneficial to the nation.

From 1697 to 1731 inclusive, our corn trade rose to be very considerable. It stood as follows:

1. Kind of Grain.	2. No. of Qrs. exported.	3. Ditto imported.	4. Excess of exports.	5. Do. of imports.
Wheat - - - -	3,592,163	124,417	3,467,746	———
Barley - - - -	7,467,129	35,340	7,431,789	———
Oats - - - - -	217,490	432,514	———	215,024
Rye - - - - -	1,098,885	178,224	920,631	———
Peas and beans	690	185	505	———

Hence

Hence it appears, that, from 1697 to 1731 inclusive, we exported, more than we imported, nearly three and a half millions of quarters of wheat, seven and a half millions of barley, and a million of rye, peas, and beans; while we imported, more than we exported, only about two hundred thousand quarters of oats: So that the balance in our favour was nearly twelve millions of quarters of wheat, barley, and rye, with the deduction of only the above small quantity of oats.

Let it here be remembered, that this was a period of national œconomy, that our agriculture had a much inferior population to support, and that the bounty which had recently been given by Parliament, no doubt stimulated our exportation, which had formerly been loaded with a duty. British agriculture now began to flourish, and the exports, thus encouraged, became considerable. As the number of persons who used wheaten bread at that period, was much fewer than at present; as common brewers were not much employed, and distilleries were then scarcely known in Britain; it is probable, that when our population was so much less, and our œconomy so much greater than in the present age, our ancestors exported, in the first thirty-five years, as much as would have served them for a whole year's supply.

In the second period, from 1732 to 1766 inclusive, our corn trade became still more valuable, and, indeed, was one of the great articles of our commerce (although prices were lower than during the former period), as will be seen from inspecting the following table.

1. Kind of Grain.	2. No. of Qrs. Exported.	3. Do. Imported.	4. Excess of Exports.	5. Do. of Imports.
Wheat - - - - -	11,540,216	291,773	11,248,443	—
Barley - - - - -	10,259,675	49,270	10,210,405	—
Oats - - - - - -	364,779	1,050,320	—	685,541
Rye - - - - - -	1,437,727	22,205	1,415,522	—
Peas and beans	25,274	9,569	15,705	—

Hence, it is obvious, that we exported a great deal more than formerly, and more than we imported, by above eleven millions of quarters of wheat, above ten millions of barley, nearly a million and a half of rye, peas, and beans, with the deduction of less than seven hundred thousand quarters of oats; so that there was a balance of above twenty-two millions of quarters of different kinds of grain in our favour.

This period, it may be obſerved, was diſtinguiſhed by national induſtry, and alſo by œconomy, rather than by luxury. The population was not much increaſed; only a ſmall quantity of oats was conſumed on horſes; very little wheat uſed in the diſtilleries; and not a great demand for barley, either by the diſtiller or common brewer. But the country was more opulent, was become more populous, and alſo had more luxury than in the former period; while the ſeaſons in general had been more favourable, and crops more abundant. It may reaſonably be eſtimated, that the twenty-two millions of quarters of different kinds of grain would have ſupplied the then population for one and a half years.

If we conjoin thoſe two periods, in which our corn trade became at firſt conſiderable, and afterwards highly beneficial, from 1697 to 1766 incluſive, the exceſs of our exportation was nearly fifteen millions of quarters of wheat, eighteen millions of barley, and above two millions of rye, peas, and beans; in all, about thirty-five millions of different kinds of grain, from which not quite one million of quarters of oats is to be deducted for importation. So much for theſe two periods.

The corn trade, in the laſt period, or from 1767 to 1801 incluſive, appears to be much on the decline; the balance againſt us being very great. The exact quantities are ſubjoined in the following table:

1. Kind of Grain.	2. No of Qrs. exported.	3. Do. Imported.	4. Exceſs of Exports.	5. Do. of Imports.
Wheat - - - -	3,063,649	10,541,300	—	7,477,651
Barley - - - -	2,614,385	1,957,838	656,747	—
Oats - - - - -	736,777	14,918,447	—	14,181,670
Rye - - - - -	173,179	1,122,641	—	949,512
Peas and Beans	666,096	1,184,304	—	518,208

Hence it appears, that we have been obliged to import much more than we exported; viz. above ſeven millions of quarters of wheat, fourteen millions of oats, one million of rye, and above half a million of peas and beans; in all, about twenty-three millions of quarters of different kinds of grain; and have only exported about ſix hundred and fifty thouſand quarters of barley —(indeed, even barley has failed ſince 1791.)

This period, it ſhould be remembered, was diſtinguiſhed by a great increaſe of population, a very improved mode of agriculture, and a high degree of national exertion, ſtimulated by a national ſpirit of enterprize, a great accumulation of capital, and alſo by our national luxury and profuſion. Notwithſtanding which, we have imported an immenſe quantity of corn, (nearly

(nearly one year's ſupply), in the courſe of the laſt 35 years. Our corn trade is no longer beneficial, at any rate, in the way of exporting it to other nations. The cauſes of its decline ſhall now be conſidered.

§ II. *Cauſes of the late Scarcity, and Decline of the Corn Trade.*

The principal cauſe is a ſeries of unproductive crops, and ſeveral calamitous ſeaſons. During the firſt mentioned period, the greateſt part of the foreign importation was in the years 1698, 1725 and 1728. Indeed, the ſeaſons, in the end of the 17th century, were as unfavourable, as in the end of the 18th; and the ſcarcity, over all the iſland, was as great, in proportion to the population. We then had neither ſo much money, nor ſuch extenſive commerce, as we have at preſent; nor could we get much ſupply from other nations; ſo that many died by famine. During the ſecond period, the ſeaſons were generally very favourable, and the crops abundant. By far the greateſt part of the importation was in the years 1740, 1757 and 1765; and the whole was not very conſiderable, if compared to what we have lately imported. But, during the laſt period, beſides, the great increaſe of our population and our luxury, and of the greater conſumpt of our corn, in two wars, in which Britain made greater exertions than ever were made by any nation, we have had only ten good crops in 35 years, ſix very unproductive, if not calamitous ſeaſons, viz. 1782 and 1783, in Scotland, 1795 and 1796, in England, and 1800 and 1801, over all the iſland. The remaining 19 years have been rather deficient than otherwiſe, ſome of them very unproductive; ſo that our great importation need be no cauſe either of amazement or deſpondency. Indeed, nearly one half of the whole importation has taken place ſince 1795; that is, we have imported, in the laſt ſeven years, as much wheat as we did in the former 98 years; and, of theſe ſeven years, four have been extremely unproductive, and only one of them a good crop. In the courſe of human events, we are not to expect that ſuch misfortunes will happen frequently; and when they do happen, good laws may greatly mitigate, but cannot altogether remove the evils which they occaſion.

Independent of theſe unproductive ſeaſons, the following are the ſecondary cauſes of ſcarcity, and of the decline of the corn trade.

Firſt, An addition of at leaſt one fifth part to the whole population of Great Britain. As this far exceeds any ſupply which the exportation of the two former periods could have afforded, it is a cauſe of the decline of the corn trade, and of the late temporary ſcarcity, which every friend to his country will contem-

plate with pleaſure. An addition to the number of inhabitants is the beſt ſupport of a nation like Great Britain, which has ſufficient extent of territory and ſoil, either fertile or improveable. If properly cultivated, it would ſupport more than double even of our preſent increaſed population.

Secondly, An addition to our mode of conſuming corn deſerves alſo to be noticed. Nearly twice as many perſons now eat wheaten bread, as formerly conſumed this ſpecies of corn. The greateſt part of the people of Scotland, and of the inhabitants of the four northern counties of England, lived formerly on oat-meal. The lower claſſes, in the midland counties, uſed barley-meal chiefly, at no remote period; and thoſe of the maritime counties of England uſed a mixture of wheat and rye-meal. Now, a great proportion of the whole inhabitants ſubſiſt chiefly on wheat flour: And, in plentiful years, a conſiderable quantity of wheat has been uſed in the diſtillery. On all theſe accounts, a greater quantity of that ſpecies of corn has been neceſſary, than what was formerly conſumed in Britain. Of barley, not leſs than a million and a half, probably two millions of quarters, are now conſumed annually, in the brewery and diſtillery, more than what was formerly manufactured into ale, porter, or ardent ſpirits. This accounts for the decreaſe of the exportation of barley, which was formerly exported with a bounty, and commonly in the ſtate of malt, along with all the rye that we could ſpare; and often returned to Britain, combined with that grain, in the ſhape of ſmuggled ſpirits. Of oats, more than double the quantity is now given to horſes, that was conſumed in this way thirty-five years ago. And a conſiderable quantity of peas and beans have been diſpoſed of in the ſame manner. Not only farm horſes are better fed; but we have more ſaddle and carriage horſes, more carriers horſes employed in conveying our extenſive commerce and manufactures, beſides a numerous cavalry (in our late wars), who required more food, both from their number and their employment, than was formerly requiſite. Of both kinds of pulſe imported, ſome part has been uſed in horticulture, from the increaſe of our luxury; and, for ſeveral years paſt, our brave and numerous ſailors have no doubt uſed a great quantity of peas in the Royal Navy. The reader is, here, requeſted to remember, that *if our agriculture had not been much improved, if graſs and green crops had not aſſiſted the white crops, and ſupplied us more abundantly with butcher-meat and vegetables, conſidering that we have had ſo many unfavourable ſeaſons, ſo many ways of conſuming our grain, and ſo great an addition to our population, we muſt have felt all the horrors of a famine, inſtead of the temporary misfortune of a ſcarcity.* The principal evil attending this, is the high price of proviſions. This ſhall next be conſidered.

§ III.

§ III. *Of the Prices of Corn at different Periods.*

It is neceſſary, here, to give only the price of wheat, both as this is beſt aſcertained, and as it is a ſtandard for the proportional value of other kinds of corn. We can aſcertain this for 600 years backward.

The following prices of wheat are calculated at a *medium* of all the known yearly prices, for the different centuries; inſtead of taking the *medium* of the prices of different years (as has been done by Dr Adam Smith, who generally takes the *medium* of only twelve years) for this average.

From 1202 to 1597, they are copied from Biſhop Fleetwood's collection of prices; only reducing the money of thoſe days to our preſent ſtandard coin: From 1597 to 1697, they are calculated from the accounts of Eton College, according to a rule of the late Mr Richard Smith, author of the corn tracts: And from 1697, they are copied from a ſimilar calculation, made by Mr Chalmers of the Board of Trade *, in that moſt valuable collection of the accounts of corn, flour, &c. which was mentioned in the introduction to this paper.

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From 1202 to 1301, at a medium of 17 years, the quarter of wheat was	2	10	3½
From 1302 to 1401, alſo at a medium of 17 years prices, it was only	1	14	7
From 1402 to 1501, incluſive, at a medium of the prices of 27 years, it fell to	0	17	5½
From 1502 to 1597, at a medium of 19 years, it roſe to	1	7	4½
From 1202 to 1597, at a medium of 80 years (all that are known), it was	1	10	5
From 1597 to 1696, incluſive, at a medium of 96 years, from the accounts of Eton College, and computing 8 buſhels of middling wheat, as above mentioned	1	18	0½
From 1697 to 1801, computed from the public accounts, as given by Mr Chalmers, on the average of 105 years	1	18	9

* Though it was judged proper to follow ſo reſpectable an authority as Mr Chalmers, in adopting Mr Richard Smith's rule for calculating the price of middling wheat, yet that method of computation makes the price of corn one fifty-fourth part too low, when we compare this with the price of middling wheat taken from Mr Calderwood's tables, which muſt be held as authentic for the laſt 30 years, though Mr Chalmers has very properly, in the above paper, given us both prices ſince 1771.

From 1202 to 1801, inclusive, at an average of 281 years, viz. 80 from Bishop Fleetwood, and 201 as above, computed from the books of Eton College L. 1 16 1

By looking at the two last sums, it appears that the average price of wheat, during the last 105 years, is only fourpence per bushel more than that for 600 years back.

Farther, Distinguishing the prices of wheat, at an average of the three periods of 35 years each, above mentioned—

The price of wheat from 1697 to 1731, inclusive, was	1	15	4½
From 1732 to 1766, inclusive, only - - -	1	10	9
From 1768 to 1801, inclusive, it was -	2	10	0

On the whole, there is not much reason for being alarmed at the high prices of corn in 1795 and 1796; nor even at the still higher prices of 1800 and 1801. Our extensive commerce both supplies our wants, and levels the price of corn. In 1270, wheat was as high as *nineteen pounds four shillings per* quarter, and there was a famine in England. In 1455, a year of very great plenty, a quarter of wheat was as low as *two shillings and fourpence*. The highest price, in a time of scarcity, (probably not so great as in 1800 and 1801, if England had possessed the same commerce and population as at present) was above 164 times its price in a time of great plenty. There can be no such inequalities now, owing to our extensive commerce. The highest price in 1800 is not quite six times as much as the lowest price that the same kind of corn would have given in the cheapest year since 1697. And the causes of that rise in the price of corn are not generally known. We shall now consider them.

§ IV. *Of the price of Corn, as affected by various causes.*

No doubt, unfruitful seasons, which occasion a scarcity, must necessarily raise the price of corn, as a succession of fruitful seasons must also lessen that price: But other causes may very considerably affect the price of corn; and some of these deserve to be mentioned.

First, In an age of luxury, and in an improved state of agriculture, there is a great demand for butcher meat. There must, therefore, be a constant competition between the farmer and the grazier. Besides this, our luxury occasions a great demand for oats to our saddle and carriage horses, as well as those employed in agriculture, or other productive labour; and that demand for oats, and also for peas and beans, must affect the price of the other kinds of grain. Nay, the brewer and the distiller will often raise the price of barley to such a height, as to make it the farmer's

farmer's intereſt to raiſe, on certain ſoils, but a ſmall proportion of wheat; and though our agriculture be much improved with reſpect to the general produce of our lands, it is very doubtful whether the increaſe of our wheat and oat crops correſponds with the increaſe of our population. Our barley crops are more than double of what they were 105 years ago; and our green crops raiſe at leaſt four times as much butcher meat, taking both quantity and quality into the account, as they did in 1697. But the great increaſe of luxury, and of the riſe of animal food, has ſometimes hurt our corn crops, from the decreaſe of tillage: For, as the price of labour, from the wages given to our manufacturers, is ſo high, the farmer often finds it his intereſt to rear cattle, or raiſe green crops, in preference to corn. No doubt, an exceſs of this cannot continue long, as the evil will correct itſelf. But the country muſt ſuffer in the mean time; and, in general, it may be remarked, that a very low price of corn is to be dreaded as a national misfortune; becauſe this muſt produce a temporary decreaſe of tillage, and therefore, in a few years, the price of corn muſt be very high. On the other hand, an exceſſively high price of corn may induce a farmer to plough his lands injudiciouſly. The extremely high prices of corn in 1800 and 1801, will probably occaſion ſuch an exceſs of tillage, as may, at no remote period, produce very bad effects.

Secondly, A falſe taſte in laying out, in perennial graſs, large tracts of very fertile land ſurrounding noblemen and gentlemens ſeats, has, in ſome degree, unneceſſarily diminiſhed the corn fields of England. Uvedale Price Eſq., as a man of taſte, has very properly expoſed this faſhionable error. A political philoſopher muſt condemn this practice, as it diminiſhes the productive labour of the farmer and his ſervants, and the produce which, by a proper rotation of crops, a fertile field is capable of yielding. No fault is here meant to be found with having a proper proportion of perennial graſs attached to a large farm; but a tax on ſuch artificial meadows, or extenſive fields of perennial graſs, as are occaſioned by this ſickly or ſqueamiſh diſlike of corn fields, would be a proper counterpart to that on farm horſes, and might tend to check what is at preſent a too faſhionable error. It occaſions a diminution of agriculture, which is equally injurious to the picturesque and to the productive—equally offenſive to the eye of a man of true taſte, and to the mind of a true patriot.

Thirdly, The price of corn is affected, in ſome meaſure, by the plenty or ſcarcity of grain in other nations. The value of corn in Great Britain is ſo very different from what it is on the continent of Europe, that, even with all the aid of our bounties, there is often no demand for Britiſh corn, at any price at which

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we can afford both to raiſe and to export it. We cannot, therefore, expect any conſiderable foreign demand, except when prices riſe to be very high abroad, and when we have great abundance of corn, and low prices at home. If we allowed free importation in ſeaſons of general plenty, the money price of corn might become ſo low in Great Britain, that our farmers would become graziers, or, at any rate, would raiſe but a ſmall proportion of corn; which, in a ſhort time, would occaſion a great and ſudden riſe of the price, if not a great ſcarcity of proviſions. It is very obvious, when we look at the tables of both exports and imports for 105 years, that our legiſlators ſhould give a decided preference to Britiſh agriculture; not merely for the ſake of encouraging the moſt valuable of all our manufactures, but for ſecuring, as far as is poſſible, a ſufficiency of food raiſed within our iſland. The ſurplus of other nations is but a ſmall part of our national ſupply; and, in this age of luxury, there is a conſtant competition between the farmer and the grazier, as well as between Britiſh and foreign corn.

Fourthly, The price of corn is ſomewhat affected by the circumſtance of our being at peace with other nations, or engaged in a war with any of them. A Highland ſhepherd uſes leſs food, and eſpecially leſs corn, while he ſtays at home, than what he requires when he becomes a Britiſh ſoldier, or ſailor. The ſame thing holds true of our manufacturers, who are often obliged, in time of war, to enter into the army or navy. Nay, a numerous cavalry requires a conſiderable ſupply of oats. Indeed, wherever more labour is endured, more food is neceſſary. Beſides, agriculture ſometimes ſuffers in time of war, from the want of labourers, eſpecially in critical ſeaſons; and when corn muſt be imported in this ſituation, the great addition to freight and inſurance muſt raiſe its price very conſiderably. It is but candid here to obſerve, that while ſome perſons abſurdly deny that war has any effect in raiſing the price of corn, others have greatly exaggerated the conſequences of a war with reſpect to plenty or ſcarcity, to either high or low prices of grain. In the two laſt wars in which we have been engaged, and in which we have made ſo great exertions, it may be ſuppoſed that we have annually conſumed about an hundred thouſand quarters of the different kinds of corn, (about one half of this of wheat), more than we would have done, if we had not been engaged in war. And in the late calamitous ſeaſons, the additional hundred thouſand quarters muſt have tended conſiderably to raiſe the price of corn, yet, could not have had any ſuch effect in occaſioning a ſcarcity, or in raiſing the price of all ſorts of grain, as ſome perſons very improperly aſſerted.

Fifthly,

Fifthly, The paſſions of men, ſome of whom are under the dominion of avarice, and others under the influence of credulity and fear, tend often to raiſe or depreſs the value of corn, artificially, or far beyond the juſt proportion of either plenty or ſcarcity. Avarice, in ſome, begets a ſpirit of monopoly, when one great corn merchant has the command of the ſupply of a particular market or diſtrict. A monopoly can never exiſt among the immenſe multitude of Britiſh farmers; and even a combination cannot take place, to any extent, among thoſe numerous corn merchants who ſupply the farmer with capital, and the manufacturer and citizen with Britiſh corn. It might ſubſiſt for a ſhort time among the great importers of foreign corn; but oppoſition of intereſts would ſoon ſet them at variance. Nothing, however, has ſo bad an effect on the price of corn, as an alarm artfully raiſed by intereſted perſons. Fear, in this caſe, is far more hurtful than avarice; and an alarm of a ſcarcity much more fatal than any danger from monopoly. In the two late calamitous ſeaſons, a deficiency of one fourth of the crop raiſed the price of corn to nearly four times its average value for the whole century. In 1795 and 1796 there was a deficiency of about an eighth part; and the importation of theſe two years was nearly one half of what it was in 1800 and 1801; while the price of corn in general was little more than double of the average price for the laſt hundred years. From theſe two facts the philoſopher can calculate, what was not ſuppoſed to be a ſubject of mathematical calculation, the effects of fear on the minds of men.

Laſtly, With all deference to our legiſlators, let it be obſerved, that the price of corn may be affected conſiderably by human laws. We do not now, like our ignorant but well meaning anceſtors, attempt to fix a direct price on all kinds of proviſions; nor, like a mad aſſembly of French revolutioniſts, have we affixed a *maximum* price to every ſpecies of corn. But ſtill that price may be conſiderably affected by our corn laws*; and whenever, by an injudicious mode of granting a bounty, our legiſlators drive more corn out of the country than Great Britain can ſpare; or when, by impoſing a prohibitory duty, they prevent foreign corn from being imported in due time; or even when Britiſh corn is not allowed to be exported while we have abundance at home, merely becauſe the prices are ſomewhat high, owing to a great demand from abroad, our corn laws are very hurtful to the nation. This ſubject merits a praticular diſcuſſion.

* While I freely point out the defects of our corn laws, I by no means agree with Mr Dirom, that the loſs of the corn market was owing to the diſcouragement thrown on our agriculture by the corn laws paſſed ſince 1773.

§ V. *The defects of our preſent Corn Laws.*

Not to ſpeak of our old laws, that impoſed a duty upon exportation, (which was a ſingular mode of encouraging Britiſh agriculture), the corn act of 1791 merits a particular conſideration; becauſe it was meant to be, not only a collection of all our corn laws that were thought worthy of being retained, but alſo to be a complete and permanent ſyſtem. A few remarks are alſo neceſſary on the late corn acts for granting a bounty on importation of foreign corn, and on certain partial or occaſional acts of Parliament.

Firſt, As to a bounty upon exportation of Britiſh corn.

This bounty was originally granted ſoon after the Revolution; and its object was ſaid to be, to gain the ſupport of the landed gentlemen in Parliament, and their acquieſcence in the land tax, which was then firſt impoſed. The granting of a bounty on exportation, has been ſtrenuouſly oppoſed by Dr Adam Smith, and has been as warmly ſupported by Dr Anderſon and others. It may be doubtful whether the ſyſtem of bounties be defenſible on general principles; but it no doubt may, from the particular ſituation of Great Britain, be expedient, in very plentiful years, to grant a bounty upon exportation of corn; provided that bounty be properly proportioned to its neceſſity. For, conſidering the great load of our national debt, and the great difference between the value of money in this iſland, and that on the continent, a regular gradation of bounties, ſuited to the low prices of corn, would not only be juſtifiable, but, for ſome time at leaſt, is even neceſſary. But, neither the granting of the ſame uniform bounty, in every caſe in which any bounty at all is allowed, nor the diviſion of the kingdom into diſtricts, and regulating the bounty according to the diſtrict prices, inſtead of the national average, appear to be juſtifiable, but to be great defects in our corn law. It is not againſt the ſyſtem of bounties, if duly regulated, but againſt the above errors in our preſent ſyſtem, that the following arguments, ſupported by unqueſtionable facts, are ſubmitted to the reader.

Theſe very improper regulations have occaſioned more corn to be ſent out of the country than Britain could conveniently ſpare. They have placed the ſpeculating corn merchants between the fear of loſs, and the hope of gain; and have tended to promote a number of diſhoneſt practices in the corn trade; while, inſtead of producing plenty, and either low or moderate prices, they have, in various inſtances, occaſioned ſcarcity, and high prices of foreign corn.

The following facts very clearly eſtabliſh the impropriety, not of granting bounties in general, but of the allowing the ſame bounty

bounty in every caſe, and giving theſe bounties (the money of the whole nation) according to the average prices of particular diſtricts, inſtead of the average price of the whole kingdom.

In 1697, the average price of wheat was 40s. 5d. By the injudicious mode of granting the bounty according to the county prices, when wheat was ſo dear, and of granting the ſame bounty as if it had been at half the price, not only about 27,000l. were thrown away improperly, before all bounties were prohibited in 1699, but the price of wheat roſe in 1698 to 54s. *per* quarter, a great ſum in thoſe days; and the diſtreſs of England, in the end of laſt century, was much increaſed by the exportation of 700,000 quarters of different kinds of grain.

In 1709, the quarter of wheat was only 42s. 10d.; but it roſe next year to 62s.; and it continued next year at 61s. 8d. Above 130,000l. had been thrown away on bounties, before Parliament interfered, and nearly 900,000 quarters of various kinds of corn had been exported, and that exportation much increaſed by the ſtimulus of a bounty. If the bounties had been duly proportioned, they would have been gradually withdrawn as prices roſe; the exportation would have been leſs, and the price of corn moderate.

In 1726 and 1727, above 130,000l. were again expended on bounties. The large exportation ſtimulated by them, occaſioned a riſe of 10s. *per* quarter of wheat in 1728; and, by draining the country of its corn, an importation of above 530,000 quarters of different kinds of grain in that and the following year: And it deſerves here to be remarked, that, even in the years 1728 and 1729, when we imported ſo much from other countries, above 47,000l. were moſt improperly expended for bounties on exportation in theſe two unfruitful years, owing to the ſame bounty being granted in every caſe in which any bounty was allowed. A gradation of bounties would have prevented thoſe evils.

In 1740, when wheat was 40s. *per* quarter, and in 1741, before Parliament ſtopped the exportation of corn, nearly 58,000l. were expended on bounties; and 120,000 quarters of oats were imported in a ſeaſon of intenſe froſt and general ſcarcity.

In 1756, above 120,000l. were expended on bounties, before Parliament, in 1757, ſtopped all exportation; when above 140,000 quarters were imported, (perhaps, only brought back to England), with a riſe of 12s. *per* quarter.

In 1766, above 140,000l. were expended on bounties, owing to theſe being paid at the diſtrict prices, though we exported very little more than we imported of all the different kinds of corn; and, by exporting ſo much as we did, owing to the ſtimulus of a bounty, the country was drained of its wheat, and the diſtreſs of 1767 and 1768 much augmented: ſo that, in theſe

two unfruitful ſeaſons, we imported above 1,300,000 quarters of different kinds of grain.

In 1780 and 1781, when wheat was from 38s. to 47s., we expended an hundred thouſand pounds on bounties for corn exported; and, what deſerves particular notice, appeared to be ſo very anxious to get rid of our grain, though at no low price, that we allowed half the bounty to be given to neutral ſhips, that were thus encouraged to export it, in oppoſition to our navigation act. Before Parliament put a ſtop to this new mode of exporting Britiſh corn, nearly a million of quarters were ſent out of the country; and we were obliged, in conſequence of two unproductive ſeaſons in England, which, in Scotland, were even calamitous, to import, in 1783, nearly eleven hundred thouſand, and, in 1784, above four hundred thouſand quarters of different kinds of corn.

In 1792, when wheat was above 42s. per quarter, we exported three hundred thouſand quarters, and expended nearly ſeventy-ſix thouſand pounds on bounties; and, by this exceſs of exportation, were obliged, next year, to import above five hundred thouſand quarters. Even in the years 1793 and 1794, we expended above thirteen thouſand pounds on bounties, owing to theſe bounties being payable at the diſtrict prices, and not the average rate of the kingdom. By this means, we drove away a conſiderable quantity of corn from the iſland, at the very time that we were importing about eighteen hundred thouſand quarters of the different kinds of grain. We had alſo expended above forty-five thouſand pounds on bounties in 1782 and 1783, owing to the ſame cauſe.

It cannot admit of a doubt, that the diſtreſs of 1795 and 1796 was much increaſed by our improper corn laws. Indeed, if the late miniſtry, who were moſt abſurdly blamed for their judicious interference, had not prohibited, by an order of Council in September 1792, the farther exportation of corn, the prices of the following years would have been much higher; and we muſt have required as much more importation, as would have balanced the additional exportation that muſt otherwiſe have taken place.

The diſtreſſes of 1800 and 1801, muſt be aſcribed chiefly to the calamitous ſeaſons. But there is not a propoſition in Euclid more clearly demonſtrable than this, that the high prices of 1795 and 1796 were, in no ſmall degree, increaſed by improper regulations in our corn laws, and that the timely interference of the miniſtry prevented ſtill greater calamities ariſing from the high prices of proviſions, than what actually happened in theſe two very unproductive ſeaſons: for the balance of the corn trade, ever ſince 1792, has been uniformly againſt us; and if we had exported two or three hundred thouſand quarters more, (when France was in great diſtreſs for proviſions), conſidering the great ſcarcity that ſucceeded, and the ſtill greater alarm that was raiſed, it is difficult to ſay how high the price of corn muſt have been ever ſince 1792.

The

The facts here ſtated, in order to ſhew the bad effects of our preſent laws, with reſpect to one uniform bounty in every caſe in which any bounty is granted, and the giving of that bounty according to the diſtrict prices, are taken from the public "accounts of corn, flour," &c.

By theſe accounts, it alſo appears, that the whole ſums expended on bounties amounts to nearly ſeven millions; exactly to 6,873,445l., from 1697 to 1797 incluſive, on corn exported. But as theſe bounties have been paid in annual ſums during a whole century; as Great Britain has been in debt during all that period; and as every nation, as well as every individual that is indebted to others, and allows debt to accumulate, pays compound intereſt till that debt be extinguiſhed, it appeared neceſſary to calculate the real loſs ſuſtained by this country from 1697 to 1802. And the reader, who has not ſtudied how quickly all annuities accumulate, will no doubt be ſurpriſed, when he is informed, that the accumulated amount of theſe bounties, with intereſt at 5 *per cent.*, is above an hundred and eighty millions Sterling; more exactly, is 183,110,777l. This would purchaſe nearly three hundred millions of the 3 *per cents.*; and therefore, would pay off more than one half of our national debt. And the great leſſon to be learned by our legiſlators, is to beware of expending ſums, which recur annually, although they may very properly give a ſum at once, or ſums that occur only at the end of ſeveral years.

The reader is requeſted to conſider, that if bounties had been progreſſive and properly regulated, a very ſmall part of this ſum would have done more real ſervice to Britiſh agriculture, without occaſioning great annual demands for bounties, or raiſing foreign corn, when imported, to ſo high prices. For it is not the ſyſtem of bounties, but the defects of that ſyſtem, which has produced ſo bad conſequences.

Secondly, As to the prohibition of exportation.

By the preſent corn law, all exportation is prohibited, if wheat ſhall riſe but two ſhillings per quarter above the price at which a bounty is granted on exporting it. Indeed, by our former laws, exportation was not permitted at all, except when a bounty was given for carrying it out of the iſland. The corn act of 1791 (in this reſpect better than our old laws) allows corn to be exported till it be about $4\frac{1}{2}$ *per cent.* dearer than when a bounty is allowed on exportation. But this is by no means ſuch a riſe as ſhould warrant the prohibiting Britiſh corn from being exported, when there is a demand from other countries. What would have become of Britain in the late calamitous ſeaſons, if other nations had refuſed to ſell us their corn, when it was 4 or 5 *per cent.* dearer than the medium price? It is neceſſary here to obſerve, that

that when there is abundance of corn in Great Britain, and a conſiderable demand from abroad, our farmers ſhould be allowed to export their corn, though the prices were ſomewhat high, as long as we have a conſiderable ſurplus of corn in our own iſland. There ſurely can be no harm in allowing foreigners *ſometimes* to pay a high price for Britiſh corn, eſpecially when we are *never* permitted to import foreign grain, except when the price is very high.

Thirdly, As to the duties on importation.

The principle of impoſing duties upon importation, may, no doubt, be defended from conſidering, as in the caſe of bounties, the ſituation of Great Britain, compared with that of the neighbouring nations, with reſpect to the value of money. But the ſudden leaps from high to low duties, do not appear to be defenſible.

The duties on importation, are three, viz. one high or prohibitory, and two low duties. The high duty is 24s. 3d. on the quarter of wheat, when this is below 48s., if imported from Ireland, or any Britiſh colony, or 50s., if imported from any foreign country. The firſt low duty is 2s. 6d. per quarter, when wheat riſes to the above prices; and the ſecond low duty is only 6d. per quarter, when wheat is two ſhillings dearer. The duties on other kinds of grain were probably meant to be proportional to thoſe of wheat.

Here, it is to be obſerved, that if wheat be below 50s., no foreign corn is permitted to be imported, except on payment of a duty equal to half its value. If the price of wheat be but a ſingle farthing more, this high or prohibitory duty falls at once to 2s. 6d. Nothing can be more improper in a country, in which there has been an exceſs of importation for the laſt thirty-five years, than thus to ſhut out foreign corn till the price is ſo high; and then to leap, at once, from a duty of 24s. 3d. to one of 2s. 6d. If, inſtead of one high, and two low duties, there had been a regular gradation of theſe, Great Britain had not felt all the bad effects of an injudicious corn law, by paying ſo high a price for foreign corn, when it was allowed to be imported; the country, on the one hand, would not have been ſo much drained of its ſuperabundant grain, in plentiful or moderate ſeaſons, if the injudicious regulation of a certain uniform bounty had not been adopted; nor, on the other, would it have been ſo empty of foreign corn, if a high prohibitory duty had not debarred ſuch corn from entering our ports, till the rivers of the North were frozen—till an alarm was raiſed in Britain, and the prices of corn became exorbitant. In the years 1795 and 1796, we were obliged to grant a bounty on importation; and in 1800 and 1801, a bounty was alſo granted on the ſame account, though in a different mode. If there had been a regular gradation of duties, inſtead

ſtead of a ſudden leap from 24s. 3d. to 2s. 6d., there would ſeldom have been any neceſſity for ſuch importation in any one year; and a ſufficient quantity of foreign corn would have been procured, without any bounty, and at a much inferior price. Owing, in ſome degree at leaſt, to the defects of our corn laws, we have paid more money for the eleven millions of quarters of wheat, and fifteen millions of oats, which we imported ſince 1697, than what we got for the eighteen millions of wheat, two millions of oats, and twenty millions of barley we exported.

It was formerly remarked, that the accumulated value of the money paid on bounties, would purchaſe three hundred millions in the 3 *per cents.* c and it may now be added, that the loſs ſuſtained by the Britiſh farmer, in being too early prohibited from exporting his corn, and by the manufacturer in impoſing a high prohibitory duty on importation, accumulated at 5 *per cent.*, would purchaſe as much ſtock as the other; ſo that the accumulated value of national loſs, ſuſtained by improper regulations in our corn laws, will be found, by any one who is converſant in the ſcience of annuities, to be equal to that of our whole national debt. Let it be remembered, that this fact is ſtated from authentic documents, and fair calculation, by one who is a friend to the ſyſtem of bounties and duties, while he points out the defects of our preſent corn laws, and while he has inſtituted ſeveral calculations, by which the quantity of error, or accumulated amount of national loſs, has been aſcertained.

On a general view of the different regulations reſpecting bounties and duties—exportation and importation, it is evident, that the preſent mode of granting an uniform rate of bounty, and that rate payable according to the diſtrict prices, has been very hurtful to the country, though a judicious gradation of bounties, payable according to the average prices of the nation, might be highly beneficial; that a gradation of duties on foreign corn, falling as the prices riſe, would give a ſufficient encouragement to Britiſh agriculture, but would not preclude ſuch foreign corn, when really neceſſary, and would facilitate this importation, when it was requiſite, without exciting any alarm, or raiſing the prices very high; that exportation ſhould not be ſtopped, while we have plenty at home, though the prices happen to riſe a good deal, owing to foreign demand; and that importation ſhould be allowed gradually, ſo as to prevent a ſudden leap from a high prohibitory, to a very low duty, and to admit foreign grain, without noiſe, when really neceſſary.

The corn act of 1791, contains ſeveral other obnoxious clauſes; but it is only the general tendency of that act, which the limits of this paper permit to be here conſidered.

It is proper, in this place, to mention, that an old act of Parliament permits distillers to use one fourth part of wheat in distillation, when it is below 48s.; and that another act prohibits the malting of wheat, however low its price may be at any time. As the distillery lately used a considerable quantity of wheat, and wheat has of late years been imported to a great amount, no wheat should be allowed to be used in distillation, except the price be so low as that a bounty is granted on exporting it; and when it falls so low, the distiller should be permitted to use wheat in any shape, and in any proportion.

Though it be also proper to notice, it would be invidious to find fault with the late Ministry for the very high bounties granted, on importation, in 1795 and 1796, and also in 1800 and 1801; yet it deserves to be remarked, that the indemnification bounty of the two last years was granted on better principles, than the bounty of the two former years; and that it would have been still better that the indemnification had been proposed a little earlier, and that it had not extended to so very high prices. For this, in fact, was telling other nations what they should charge for their surplus grain. A gradual and moderate set of duties, falling as prices rose; free importation when they became very high; and when they became extremely high, a proposal, in due time, of indemnification to a certain extent, would probably have been more beneficial, though no blame is attached to those who offered a higher bounty. So much as to the defects of our present Corn Laws.

§ VI. *Sketch of the principal Regulations in any new Corn Law.*

The author of this general view, in 1792, published a pamphlet, entitled Tracts on the Corn laws—copies of which, he sent to the Members of the Corn Committees in Parliament. In 1796, he printed, at the request of the county of Aberdeen, some observations on the sale of corn by weight—which were also circulated. And, in 1800, at the request of two Members of Parliament, he drew up the heads of a new corn bill, which was given in to the Corn Committee of the House of Peers by Sir William Pulteney, Baronet. Making a general reference to these papers, he shall here briefly state the principal parts of his plan, and subjoin a table of progressive duties and bounties, constructed on its principles.

First, As to Bounties.

When wheat is below 45s. per quarter, and other kinds of grain are in proportion, he would propose a bounty of 1s. 6d. per quarter, or 7s. 6d. per tun. When it falls below 42s., he would propose a farther bounty of 1s. 6d.; in all, 3s. per quarter,

ter, or 15s. per tun. When it falls below 39s., he would next propoſe a bounty of 4s. 6d. per quarter, or 22s. 6d. per tun; and when it falls below 36s., or the medium price for the laſt 600 years, he would propoſe a bounty of 6s. per quarter, or 30s. per tun. The bounties on other kinds of corn, to be in proportion to thoſe on wheat.

2*dly*, When wheat does not exceed 51s. *per* quarter, (which is the average price of the laſt thirty years), it is propoſed that a free exportation, without any bounty, ſhould be permitted by law. Here the author requeſts the manufacturers to conſider, that, when we have abundance of corn at home, and when there is a ſcarcity abroad, Britiſh corn ſhould be allowed to be ſold to foreigners, though it be ſomewhat high-priced, owing to a demand from abroad.

3*dly*, To ſecure always a preference to Britiſh corn, except when there is a real ſcarcity, and yet to prevent the inhabitants of cities and towns from paying too high a price for proviſions, or ſuffering for want of importation in proper time, he would propoſe a gradation of duties; the loweſt one a merely nominal duty of 1d. on the quarter of wheat, or 5d. on the ton, when the price of corn exceeds 54s.; riſing gradually to 12s. *per* quarter, or nearly 3l. *per* ton, when wheat falls below 36s. *per* quarter. The Britiſh farmer is here deſired to conſider, that there is a decided preference given to him when the prices are low; but is requeſted to remember, that, when prices riſe high, and corn cannot be had in Britain, it is but fair, that the importation of foreign corn be permitted, upon payment of a gradually falling duty, till free importation, or a duty merely nominal, takes place, when prices are very high.

Theſe duties, it may here be obſerved, will be ſufficient for defraying the expence of all the gradually increaſing bounties, which, in times of plenty, are granted to the exporter. Therefore, inſtead of an immenſe expence to the nation, as theſe are at preſent, the bounties on exportation will, in ſome ſenſe, be paid by foreigners—at any rate, by a countervailing duty on importation.

The impoſing of duties, and granting of bounties, ſo as mutually to check each other, is peculiar to the ſyſtem propoſed by this author.

The reader is intreated now to attend to its effects.

By this plan, when corn is extremely cheap, or wheat below 36s., the Britiſh farmer gets 6s. of bounty, while foreign wheat pays 12s. of duty. When corn is a little higher, though ſtill very cheap, or wheat below 39s., Britiſh wheat receives 4s. 6d. on exportation, while foreign corn pays 10s. 6d. on importation. When it riſes ſomewhat higher, but is below 42s., the Britiſh farmer gets only 3s. of bounty, and the importer of foreign corn pays 9s.

of duty. When wheat ſtill riſes higher, but is under 45s., only 1s. 6d. of bounty is allowed, and 7s. 6d. of duty is impoſed. Thus, the preference is very decidedly in favour of Britiſh corn; though foreign grain is not expreſsly prohibited, or loaded with a a very high prohibitory duty, as long as any bounty is allowed on exportation. But, as ſoon as the bounty is withdrawn, the duty on foreign corn is only equal to the higheſt bounty, or 6s. *per* quarter. This makes the preference ſomewhat leſs in favour of Britiſh corn. When wheat riſes 2s. higher, or to 47s., the duty is reduced to 5s.; when it riſes to 49s., the duty is only 4s.; and when it riſes to 51s., all exportation is ſtopped, and a duty of only 3s. is impoſed. That is gradually reduced to a nominal duty of 1d., when the price riſes above 54s.; and, when no preference ought to be given to Britiſh corn, at a time when the great object is to ſupply the inhabitants with proviſions, the duties on all theſe kinds of grain are proportioned to thoſe of wheat, the loweſt, or nominal duty of 1d. *per* quarter, only excepted.

4thly, It is propoſed, that the above duties and bounties ſhould be paid according to the average prices of the whole kingdom, and not of any county or particular diſtrict.

Laſtly, In order to introduce the ſale of corn by weight—in the following table, a ſmall preference, both on the bounties and duties, is given to corn ſold by weight. This, without any violence, will, in a ſhort time, introduce and eſtabliſh the ſale of corn by weight only. Theſe are the principal objects of

Manſe of Keith-hall, 1. *Apr.* 1802. GEO. SKENE KEITH.

P. S.—In the table which is ſubjoined, the price at which *free exportation* is permitted, is 54s. per quarter of wheat. Conſidering the great alteration that has taken place in the *real* value of money, this might be extended to 57s., or even to 3l. per quarter. But, as a *private* individual, I did not *feel myſelf at liberty* to propoſe raiſing the price at which free importation ſhould be permitted. For the ſame reaſon, I have not made any alteration on the *proportion* of the value of wheat to barley and oats, though theſe are, in all our corn laws, much underrated, when compared to wheat, whether we conſider the *real* value, or the *average* prices of a quarter of wheat, compared with a quarter of oats or barley. But if a new corn law ſhall be brought into Parliament, it is hoped that thoſe who have influence in the Legiſlature, will take all theſe things into their conſideration: And from the moderation, and other eſtimable qualities of Mr Addington, a new corn law will be expected by every man who underſtands the ſubject, and is not warped by prejudice, nor influenced by intereſted motives. G. S. K.

FOR

TABLE (

When the different kinds of Corn are under the following Prices, the following Bounties are propoſed to be give

WHEAT, FLOUR, &c.								BARLEY, BEAR, OR BIGG.						Sold
Sold by Meaſure.			Sold by Weight.			Flour or Biſcuit.		Sold by Meaſure.			Sold by Weight.			
Under *per* Quarter.	Bounty *per* Quarter.	Duty *per* Quarter.	Under *per* Ton.	Bounty *per* Ton.	Duty *per* Ton.	Bounty *per* Ton.	Duty *per* Ton.	Under *per* Quarter.	Bounty *per* Quarter.	Duty *per* Quarter.	Under *per* Ton.	Bounty *per* Ton.	Duty *per* Ton.	Under *per* Quarter.
s. d.	s. d.	s. d.	l. s.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	l. s.	s. d.	s. d.	s. d.
36 0	6 0	12 0	9 0	30 0	56 0	38 0	72 0	18 0	3 0	6 0	5 10	18 0	32 0	24 0
39 0	4 6	10 6	9 15	22 6	49 0	28 6	63 0	19 6	2 3	5 3	6 0	13 6	28 0	26 0
42 0	3 0	9 0	10 10	15 0	42 0	19 0	54 0	21 0	1 6	4 6	6 10	9 0	24 0	28 0
45 0	1 6	7 6	11 5	7 6	35 0	9 6	45 0	22 6	0 9	3 9	7 0	4 6	21 0	30 0

TABLE (

When Corn does not exceed the following Prices, Exportation, without any Bounty, is per

WHEAT, FLOUR, &c.					BARLEY, BEAR, OR BIGG.				R
Sold by Meaſure.		Sold by Weight.		Flour, Biſcuit.	Sold by Meaſure.		Sold by Weight.		Sold by
Not above *per* Quarter.	Duty *per* Quarter.	Not above *per* Ton.	Duty *per* Ton.	Duty *per* Ton.	Not above *per* Quarter.	Duty *per* Quarter.	Not above *per* Ton.	Duty *per* Ton.	Not abo *per* Quarter
s. d.	s. d.	l. s.	s. d.	s. d.	s. d.	s. d.	l. s.	s. d.	s. d
45 0	6 0	11 5	28 0	36 0	22 6	3 0	7 0	16 0	30
47 0	5 0	11 15	23 4	30 0	23 6	2 6	7 6	13 0	31
49 0	4 0	12 5	18 8	24 0	24 6	2 0	7 12	10 6	32
51 0	3 0	12 15	14 0	18 0	25 6	1 6	7 17	8 0	34

TABLE (

When Corn exceeds the following Prices, it is propoſed that all Exportation ſhould be

WHEAT, FLOUR, &c.					BARLEY, BEAR, OR BIGG.				R
Sold by Meaſure.		Sold by Weight.		Flour, Biſcuit.	Sold by Meaſure.		Sold by Weight.		Sold b
Above *per* Quarter.	Duty *per* Quarter.	Above *per* Ton.	Duty *per* Ton.	Duty *per* Ton.	Above *per* Quarter.	Duty *per* Quarter.	Above *per* Ton.	Duty *per* Ton.	Abov *per* Quarte
s. d.	s. d.	l. s.	s. d.	s. d.	s. d.	s. d.	l. s.	s. d.	s.
51 0	1 6	12 15	7 0	9 0	25 6	0 9	7 17	4 0	34
52 0	1 0	13 0	4 8	6 0	26 0	0 6	8 0	2 8	34
53 0	0 6	13 5	2 4	3 0	26 6	0 3	8 2	1 4	35
54 0	0 1	13 10	0 5	0 6	27 0	0 1	8 5	0 3	36

N. B. Theſe Tables are double the Size they would have been, if the Prices, Duties, and Boun
are ſomewhat larger, and the Duties a few *per cents* leſs on the Weight than on the M
Merchant's Intereſt to buy and ſell in that way only.—G. S. K.

E (A.)

be given on Britiſh Corn Exported, and the following Duties to be Paid by Foreign Corn Imported.

RYE, PEAS, BEANS.						OATS, AND OAT MEAL.							
Sold by Meaſure.			Sold by Weight.			Sold by Meaſure.			Sold by Weight.			Oat meal.	
Under *per* Quarter.	Bounty *per* Quarter.	Duty *per* Quarter.	Under *per* Ton.	Bounty *per* Ton.	Duty *per* Ton.	Under *per* Quarter.	Bounty *per* Quarter.	Duty *per* Quarter.	Under *per* Ton.	Bounty *per* Ton.	Duty *per* Ton.	Bounty *per* Ton.	Duty *per* Ton.
d.	s. d.	s. d.	l. s.	s. d.	s. d.	s. d.	s. d.	s. d.	l. s.	s. d.	s. d.	s. d.	s. d.
0	3 8	7 4	6 6	20 0	36 0	12 0	2 4	4 8	4 10	16 0	28 0	28 0	52 0
0	2 9	6 5	6 16	15 0	31 6	13 0	1 9	4 1	4 17	12 0	24 6	21 0	45 6
0	1 10	5 6	7 7	10 0	27 0	14 0	1 2	3 6	5 5	8 0	21 0	14 0	39 0
0	0 11	4 7	7 16	5 0	22 6	15 0	0 7	2 11	5 12	4 0	17 6	7 0	32 6

E (B.)

is permitted; and the following Duties are propoſed to be paid on Importation.

RYE, PEAS, BEANS.				OATS, AND OAT MEAL.				
Sold by Meaſure.		Sold by Weight.		Sold by Meaſure.		Sold by Weight.		Oat Meal.
Not above *per* Quarter.	Duty *per* Quarter.	Not above *per* Ton.	Duty *per* Ton.	Not above *per* Quarter.	Duty *per* Quarter.	Not above *per* Ton.	Duty *per* Ton.	Duty *per* Ton.
s. d.	s. d.	l. s.	s. d.	s. d.	s. d.	l. s.	s. d.	s. d.
30 c	3 8	7 16	18 0	15 0	2 4	5 12	14 0	26 0
31 4	3 0	8 2	15 0	15 8	2 0	5 17	11 8	21 0
32 8	2 5	8 8	12 0	16 4	1 6	6 2	9 4	17 0
34 0	1 10	8 15	9 0	17 0	1 2	6 7	7 0	13 0

E (C.)

uld be prohibited, and Importation permitted, on the following low Duties.

RYE, PEAS, BEANS.				OATS, AND OAT MEAL.				
Sold by Meaſure.		Sold by Weight.		Sold by Meaſure.		Sold by Weight.		Oat Meal.
Above *per* Quarter.	Duty *per* Quarter.	Above *per* Ton.	Duty *per* Ton.	Above *per* Quarter.	Duty *per* Quarter.	Above *per* Ton.	Duty *per* Ton.	Duty *per* Ton.
s. d.	s. d.	l. s.	s. d.	s. d.	s. d.	l. s.	s. d.	s. d.
34 0	0 11	8 15	4 6	17 0	0 7	6 7	3 6	6 6
34 8	0 8	9 0	3 0	17 4	0 5	6 10	2 4	4 4
35 4	0 4	9 5	1 6	17 8	0 2	6 13	1 2	2 2
36 0	0 1	9 9	0 4	18 0	0 1	6 15	0 3	0 5

l Bounties had not been mentioned both in Weight and in Meaſure. The Bounties
the Meaſure, in order to encourage the Sale of Corn by Weight, by making it the

FOR THE FARMER'S MAGAZINE.

Obſtacles to Agricultural Improvement.

(Continued from p. 138.)

TITHES.

IN mentioning a ſubject at once ſo delicate and important, forming a great national eſtabliſhment, in which the intereſts of ſuch a *numerous*, *uſeful*, and *reſpectable* body as the Clergy of the Church of England are concerned, the dignified members of which form a part of the higheſt branch of the National Legiſlature, much caution and circumſpection are required; and in giving my ideas to the public, it is my wiſh to avoid, alike, the illiberal complaints that have been made by ſome againſt tithes, or the crude ill-digeſted plans that have been offered by others for their removal.

When tithes were firſt eſtabliſhed, the Roman Catholic was the religion of the country—no other was then tolerated; and the different deſcriptions of religious orders were exceedingly numerous. At that period, as well as now, the clergy were the peculiar care of the State, and provided for in a manner ſuited to their rank, and the importance of their functions to ſociety.

Money being then exceedingly ſcarce, almoſt every payment was made either in *grain*, *cattle*, or other produce, (a mode of dealing exactly ſuited to that ſtage of ſociety, in which the wants of men were few, compared to what they are at preſent), and the commodities in which the payments were made, were almoſt the only articles of neceſſity then in uſe; not only the revenues of the church, but the rents of land, and the public taxes, were levied in the ſame manner.

Progreſſively, however, as commerce became more extended, and money plentier, hard caſh was the principal medium; and accordingly, from about the middle of the laſt century, agreements began to be made, either for a part money, and a part produce, or for money entirely, as ſuited the ſituation and circumſtances of the parties; and there are ſtill many leaſes of extenſive farms held upon theſe terms. Indeed, many landlords, from a conviction of the trouble attending the receipt of rents in kind, and the fluctuating nature of ſuch payments, commuted them for money, upon terms highly advantageous to the tenants; but, for many years back, almoſt all bargains have been made for a certain ſpecified ſum.

Tithes alone continue to be paid in kind, and have long outlived the circumſtances that gave riſe to them. In that way, a tax that was originally laid on when agriculture was almoſt the only buſineſs of the nation, and which was then but lightly felt,

and cheerfully complied with, is now, from the great advance in the price of commodities, the improvements that have been made in agriculture, and the expence with which theſe improvements are attended, become a heavy load upon the agricultural intereſt of the country, and operates as a very ſerious obſtacle to improvement. Tithe in kind, undoubtedly operates in two ways; 1*ſt*, by preventing the beſt lands from being broke up and cultivated in the moſt profitable manner; and, 2*dly*, by impeding the improvement of the waſte lands.

In regard to the operation of tithes upon the beſt lands, it appears, from the reports in poſſeſſion of the Board of Agriculture, that in many of the moſt fertile diſtricts, where the ſoil is of the beſt kind, and well adapted to the raiſing of grain, a great proportion of the beſt lands are kept in paſture, from no other motive but that of depriving the clergyman of his tenth; which, were ſuch rich old paſtures broke up, would amount to an almoſt incredible ſum, and ſuch, that the payment of it muſt at all times be made with great reluctance. To obſerve ſo much valuable produce carried off yearly, cannot fail to be very unpleaſant, both to proprietors and farmers, who accordingly unite in endeavouring to evade the payment of the tax, by purſuing a ſyſtem that exempts them from it; and this they are only able to do, by keeping the lands in paſture, and ſtocking them in a certain way. Accordingly, in many of the moſt fertile diſtricts in England, a great proportion of the beſt lands have been kept in paſture for no other reaſon. The pernicious effects of this ſyſtem are very viſible in every diſtrict where it obtains. The lands that are under the plough, bear ſo ſmall a proportion to thoſe kept in paſture, as, in many caſes, not to amount to a fixth part. Theſe are kept perpetually in tillage; and the only reſpite they have, from the exhauſting effects of corn crops, is, from a ſummer-fallow, which, in too many inſtances, is done in a very ſlovenly manner; and the kinds of ſeeds and rotation, afterwards followed, very unlike what is purſued in the improved parts of the iſland, where there are no diſcouragements from tithes or otherwiſe.

By theſe means, that part of the ſoil, deſtined for the raiſing of grain, becomes dirty and exhauſted, beyond meaſure; while the paſture lands are annually acquiring an additional quantity of manure, for which they have no occaſion, and in the end have their value diminiſhed, in a conſiderable degree, by the numerous molehills with which they are overrun.

From every information, that has been communicated to the Board of Agriculture, it appears, that in all the improved diſtricts, where the farmer is not fettered with improper covenants, but left to purſue his own plans, there is no ſuch thing as permanent

nent paſture, except upon meadows that are liable to inundation, or lands that can be ſucceſsfully irrigated, both of which will pay better in graſs than under any other mode of culture. In theſe diſtricts, broad clover, and other artificial graſſes, are introduced only as a part of the rotation, and are ſeldom allowed to ſtand longer than the firſt, or, at moſt, the ſecond year. Theſe, with the addition of *green*, and drill crops, not only renovate the ſoil, and give it freſh powers of production, but give the farmer an opportunity of deſtroying weeds, and keeping his land clean, without the laborious and expenſive operation of fallowing.

Were a ſimilar ſyſtem introduced into thoſe parts of England, where the defective one above mentioned prevails, a certain proportion of the old graſs lands ploughed yearly, and an equal proportion of the dirty exhauſted fields well fallowed, and laid down to graſs in their place, the agriculture of theſe diſtricts would ſoon aſſume a different aſpect, and more than double the quantity of food raiſed, both for the uſe of man and our domeſtic animals, at even leſs labour and expence than is at preſent incurred.

This the intelligent Engliſh farmers are now perfectly convinced of; but their rooted averſion to the tithe in kind, aided by prejudices with which it is in vain to reaſon, prevents them from adopting a ſyſtem, which, notwithſtanding the drawback of tithes, would eventually be profitable to themſelves, and highly advantageous to the community, as the extra quantity of grain, and other articles produced, would in a great meaſure, if not entirely, ſuperſede the neceſſity of importation; and, by doing ſo, not only leſſen our dependence upon other nations for articles of indiſpenſable neceſſity, but keep immenſe ſums in the country, that, for a long period, have been annually ſent out of it.

Upon the ſecond point, namely, the effect of tithes in preventing the improvement of the waſte lands, their operation has been extremely baneful. Thoſe who are beſt acquainted with agricultural operations know, that, in all caſes, where the improvement of property of that kind is attempted, a conſiderable capital is required, as well as great labour and unwearied attention: after all, the ſucceſs is uncertain, as it ſometimes happens, that, where a great deal has been done under the direction of the beſt judgement, the returns have been very inadequate to the outlay.

So circumſtanced, it is not to be wondered at, that a proprietor or farmer ſhould pauſe, before he ventures upon the undertaking: for, ſhould it ſucceed, he has the mortification of ſeeing a tenth of the produce carried off, by a perſon who has contributed neither money, labour, nor talents in raiſing it; and, if it fail, he has the additional pain of ſeeing a tenth part even of his

ſmall returns taken away in the ſame manner; in both caſes, unprejudiced minds will no doubt ſee much hardſhip.

In every inſtance, where improvements are attended with ſo much labour and expence to the individuals who undertake them, where the ſucceſs is uncertain, and the intereſt of the public is ſo materially connected with that ſucceſs, every obſtacle ought to be removed; and aid and encouragement held out, not only for rendering the culture of the preſent arable lands as perfect as poſſible, but for reclaiming and bringing into a ſtate of cultivation, the commons and waſte lands of the kingdom. By the abolition of tithes upon the commons and waſtes, the Church would ſuſtain no injury, as no part of its revenue ariſes from that deſcription of property at preſent, a circumſtance well deſerving of conſideration; and, if the Legiſlature ſhould approve of the meaſure, much public benefit would ariſe from ſuch property being totally exempted, not only from tithes, but from all public burdens, whether of a parochial or parliamentary nature, for a given number of years.

I have the beſt reaſon to think, that I ſpeak the ſentiments of the moſt enlightened and reſpectable of the Engliſh clergy, when I ſay, that any plan that could be deviſed by Government, for the better regulation of tithes, ſo as to give free ſcope to the induſtry and improvement of the country, would be highly agreeable to them, and tend, in a material degree, to remove thoſe unfortunate prejudices, which, in many inſtances, leſſen their uſefulneſs; and are alike unfriendly to their own private comfort, and to the morals of the people.

In Scotland, before the Reformation, tithes were collected in the ſame manner as they are in England at this day. After that period, however, they were valued, and converted into money; in that way they became fixed; and though the ſtipends of the Reformed clergy were originally ſettled at ſums conſiderably below what the teinds were valued at, a power was left to the clergy to proſecute for an augmentation, till their livings amounted to the whole of the valued teind; in other words, till the teinds were exhauſted; which many of them have already done. Such an arrangement, in place of the endleſs vexation and lawſuits between the clergy and the occupiers, fixes it upon the proprietor, who pays it in the ſame manner as other taxes affecting his property; in that way, the Clergy of the Church of Scotland live in a ſtate of perfect tranquillity, and are beloved and reſpected by all ranks of ſociety.

Perhaps, a ſimilar arrangement in England would be productive of effects equally pleaſant and beneficial. Were a commiſſion appointed to value the whole tithes in every pariſh, and that valuation to be made the ſtandard for all future payments, and the proprietor

proprietor made accountable to the clergyman for the amount, every thing like controverſy or litigation would be avoided, and the farmer be left to purſue his plans of improvement without moleſtation, with an abſolute certainty of enjoying every advantage that might ariſe from his ameliorations. By this plan, which is extremely ſimple, no additional load would be laid upon the lands at preſent under the plough, though they ſhould be improved in a tenfold proportion; the livings of the Clergy would continue the ſame as at preſent, and be ſubject to no diminution, either from an alteration in the price of commodities, or any other circumſtance by which they are affected. The immediate conſequence of ſuch a ſyſtem would be, the converſion of thoſe immenſe tracts of valuable old paſture, which have remained in that ſtate beyond the memory of man, into tillage lands, the produce of which would not only increaſe the quantity of grain, and other articles annually raiſed, in a very great degree, but afford an opportunity of cleaning and laying down to reſt, a part of the preſent tillage lands, that have been exhauſted and rendered dirty, by conſtant cropping and imperfect cultivation.

Great as this advantage would be upon the preſent arable lands, the benefit would be ſtill greater upon the waſtes, commons, and unimproved parts. Such lands being put into *ſeveralty*, and the proprietor or occupier, freed from the apprehenſion of ſeeing the fruits of his laborious and expenſive experiments ſeized by a ſtranger, would commence his operations with ardour, from a conviction that he was to derive every advantage ariſing from them.

Thoſe who are acquainted with the characters of men, will readily be able to form an eſtimate of the difference, between the feelings and exertions of thoſe who attempt to make improvements under the tithe ſyſtem, and others who have nothing of that kind to dread. In the latter caſe, *money*, *genius*, and *application* are beſtowed to the full extent; and the uncertainty of ſucceſs vaniſhes, before the pleaſing idea of excluſive advantage. Such undertakings are almoſt always crowned with ſucceſs.

Under the tithe ſyſtem, every thing is undertaken with reluctance; partly from the uncertainty of ſucceſs, to which all undertakings of the kind are liable, and partly from the unpleaſant proſpect of ſeeing another carrying off a tenth of the produce, to the raiſing of which he has contributed nothing.

Obſtacles ariſing from the State of the Public Roads.

There is, perhaps, no circumſtance connected with the account of any country, upon which the ſucceſs of its agriculture and inland trade more immediately depends, than the ſtate of the public roads.

Every

Every part of the agricultural produce is of ſuch weight and bulk, as to render the carriage of it an arduous taſk, even in the beſt ſituations; and the articles required for the improvement of the farm, ſuch as *dung*, *lime*, *coal*, *peat*, &c. are all of them heavy, and difficult of carriage. A conſideration of theſe circumſtances will convince every perſon of obſervation, that, in a country where good roads are wanting, improvements muſt neceſſarily make very little progreſs: On the other hand, we obſerve, that, in proportion as roads have been multiplied, and put into good order in any diſtrict, and the communication between one part of the country and another rendered more eaſy, the cultivation of theſe parts has rapidly advanced; while, in more remote and diſtant ſituations, it languiſhes from an oppoſite cauſe.

In ſome inſtances, the want of roads is, in a great meaſure, compenſated by canals; along which, not only grain and other articles of agricultural produce are tranſported at a cheap rate, but coal, lime, and other articles of improvement, are brought back in the ſame eaſy and expeditious manner: in that way, a ſource of improvement has been opened for ſeveral extenſive inland tracts, which would otherwiſe have remained in a neglected ſtate. Indeed, good roads are, to the agriculture and inland trade of a country, exactly what the ſea is to its navigation and commerce; and the full attainment of that object cannot be too ſtrongly recommended, not only to the Legiſlature, but to the proprietors and occupiers of land; as, by a due attention to it, moſt of the inconveniencies, ariſing either from the diſtance of markets, or the means of improvement, may be obviated, and an opportunity afforded for the cultivation of many diſtricts, at preſent in a ſtate of nature.

It is certain, that, in many caſes, eſpecially in the remote and elevated parts of Britain, where the chance of improvement is ſo ſmall, as to deter proprietors from making roads, this is is an expenſive operation. There are inſtances, however, where the undertaking was ſeemingly hopeleſs, and where good roads have been made at a very trifling expence; by which, the lands they run through, have been improved and rendered fertile, beyond what they were imagined capable of. Thoſe who travel the new line of the poſt-road from Perth to Aberdeen, and compare the appearance of that country now, to what it was thirty years ago, will ſee a ſtrong proof of the truth of this obſervation throughout the whole line: the progreſs of improvement has been rapid, and the features ſo ſtrong, as to attract the notice of even the moſt inattentive traveller.

The turnpike roads throughout the iſland being under a regular ſyſtem of management, are, for the moſt part, kept in tolerable order; and, throughout the whole of their courſe, cultivation

tion has made conſiderable progreſs. The ſituation of the country or parochial roads, is very different; owing, evidently, not to a ſcarcity of funds, as a defect of ſyſtem, as the money deſtined for that purpoſe, if properly applied, is more than ſufficient for ſupporting them in the beſt order. The laws, preſently in force, for the management of our roads, originated in the reign of Charles the Second; before which, though the highways had been attended to by the Legiſlature, it was found, that the ſyſtem by which they were managed, was inadequate to the object propoſed by it.

The principle, that ſeemed to direct theſe laws, was the ſame as ought to be obſerved at preſent; namely, that the roads ſhould be made and repaired by thoſe who uſed and were benefited by the uſe of them. At that period, this law applied particularly to thoſe concerned in the cultivation of the earth, as agriculture then formed the principal buſineſs of the nation; and, from the want of commerce and inland trade, ſcarce any other bulky article was carried along the road, but the produce of the earth. In ſuch a ſtate of ſociety, to lay the expence of making and repairing the highways upon thoſe who made the ſole uſe of them, was an act of ſtrict juſtice; and that contribution was rendered lighter, from the circumſtance of the labour being performed at a ſeaſon of the year, when the horſes and ſervants would otherwiſe have been idle; in that way, a public benefit was obtained, and habits of ſloth and idleneſs exchanged for thoſe of labour and induſtry.

While the country continued in the ſituation I have now deſcribed, no better or more equitable ſyſtem could be deviſed; as the expence of ſupporting the highways fell entirely upon thoſe who made uſe of them, and were benefited by doing ſo.

The eſtabliſhment of manufactures, however, together with an increaſe of the inland trade, and the great extenſion of the national commerce, have ſo materially altered the ſituation of affairs, that a ſyſtem, which was then founded in juſtice and found policy, has now, from an alteration of circumſtances, become partial and oppreſſive. In the ſtate of ſociety above deſcribed, the expence of ſupporting the highways was very properly laid upon thoſe concerned in agriculture, as they were chiefly benefited by them. Progreſſively, however, as a change of circumſtances took place, new deſcriptions of perſons began to uſe the highways, and derived benefit from them. The merchant, the manufacturer, the mechanic, had, at once, their raw materials and their manufactured produce carried in a cheaper and more expeditious manner; and, as new arts crept in, and inland trade increaſed, the number of perſons uſing the roads for theſe purpoſes, increaſed in the ſame proportion.

In

In that way, an alteration of ſyſtem became neceſſary, and a new code of laws was framed accordingly; by which, perſons of every deſcription, uſing the highways, were ſubjected in a payment proportioned to the advantage they derived from them. Had the parochial roads then been put under the ſame management, they would have been equally good at this day as the turnpikes; as the funds deſtined for that purpoſe, if carefully collected and properly applied, are fully adequate to that purpoſe. It would be a matter of ſome labour, preciſely to aſcertain the amount of the ſtatute labour, if valued in money over the whole iſland; particularly, as the rate of payment differs very much in different diſtricts, being, in ſome counties, much higher than in others; but the ſum total is certainly very great.

In ſome places, the ſtatute labour is commuted for money; but, in a great majority of caſes, it is ſtill paid in kind; one of the worſt modes that can poſſibly be deviſed. Both farmers and cottagers obey the call to work upon the roads with reluctance; of courſe, they work little, and even that is performed in a ſlovenly manner; as it is the number of days, not the *quantum* of labour, that conſtitutes their ſervice. In that way, the effects of the ſtatute labour are trifling and nugatory, though the public is yearly contributing a ſum ſufficient to anſwer every uſeful purpoſe. It has already been obſerved, that when the ſtatute labour laws were firſt enacted, they were not only juſt, but the ſeaſon of the year at which the labour was required was perfectly convenient for the farmer; and, in place of being a grievance, was an advantage, by keeping the perſons concerned in agriculture employed, at a time when they would otherwiſe have been idle.

The ſtate of Britiſh agriculture is now, however, ſo much changed, by the introduction of drill crops and fallowing, that there is conſtant employment for the ſervants and horſes upon every farm, during the whole year, as, by the time that one courſe of operations is completed, another is ready to commence. Under ſuch a ſyſtem, every good farmer muſt feel much reluctance at having his operations ſuſpended during the turnip ſeaſon, hay harveſt, or working his fallow. This interruption, however, frequently happens, and is in ſome inſtances attended with much loſs and inconvenience to thoſe concerned.

The obvious remedy, in this caſe, would be, to levy the whole of the ſtatute labour in money; and put the roads to which that labour is applicable, under the ſame ſyſtem of management as the turnpikes now are; a meaſure, in which the whole of the agricultural intereſt would readily acquieſce; as it would not only

only relieve them of a ſervice, the performance of which, in many caſes, is attended with much loſs and inconvenience; but alſo tend greatly to the improvement of the roads; a circumſtance materially connected with the ſucceſs of all their operations.

By levying the money in that way, and laying it out under the inſpection of truſtees, the public would be enabled to make contracts with perſons acquainted with road-making; who would not only execute the work cheaper, but perform it better; and, what ſeems to be of great importance, the truſtees would have it in their power to contract for the making or mending of an extenſive line of road at once; and, as no payments would be made to the contractors till the work was completed, and inſpected by the truſtees, ſuch inſpection would be a ſufficient ſecurity for its being ſubſtantially and properly performed.

Were ſuch a ſyſtem adopted, a conſiderable extent of road might be made in every diſtrict yearly; and, in the courſe of a few years, the whole would be perfected; whereas, by the preſent mode, little good is done; ſmall patches only are made and repaired in one place, which, from the defective manner in which the work is executed, are broke and deſtroyed almoſt as ſoon as finiſhed. In that way, in place of making any progreſs towards amendment, every ſucceeding year finds the roads in a ſituation equally wretched and miſerable as the former; and this will continue to be the caſe, till the Legiſlature enact laws better calculated to produce good management.

Poor's Rates.

There is no circumſtance which ſo ſtrongly diſtinguiſhes the Britiſh character, as the ample proviſion that is made, and the humane attentions that are paid, to the diſtreſſed part of the community. Many of the inſtitutions, formed for that purpoſe, are eminently uſeful, and the knowledge of the relief which they afford, muſt give pleaſure to every benevolent mind. It is, however, certain, that an inſtitution which originated in motives of the pureſt benevolence, has been much abuſed; and many, who were capable of labour, have ſheltered themſelves under the privilege they derived from the poor's rates, and, in that way, become burdenſome to the community.

The motive for this tax, certainly originated in a humane deſire to reſcue from miſery and want, thoſe members of the community, who, from age or misfortune, were unable to earn a ſubſiſtence for themſelves. Perſons of that deſcription, when they become incapable of labour, have an undoubted right to be cheriſhed and ſupported by the ſociety that has been benefited by their

their labours; and to individuals of that deſcription, ſuch aſſiſtance is, for the moſt part, readily and cheerfully given.

That the poor's rates were firſt inſtituted ſolely for this purpoſe, there can be no manner of doubt; and had they continued to be applied in that way only, every deſerving object might have been ſupported by them at an expence, ſo trifling, as not to be felt by the community.

The eaſe, however, with which perſons were admitted to the benefit of that fund, and the comfortable proviſion that was made for them, formed a ſtrong temptation to the worthleſs and diſſipated. Many, who were very capable of labour, by feigned ſtories of diſtreſs, the truth of which it was difficult for the Managers to aſcertain, were admitted: Others, again, who, though leſs averſe to labour, continued at their work, yet, loſing all ſight of œconomy, gave into habits of expence, knowing that they could with eaſe obtain a living from the pariſh, when they became incapable of working.

In that way, the deſire, ſo common amongſt men, of providing ſomething againſt a ſeaſon of infirmity and diſtreſs, is taken away; as they foreſee, in the pariſh rates, a certain reſource againſt want, and a more ample proviſion than many of them could obtain by a long courſe of œconomy and ſelf-denial. That laudable pride, which creates an averſion in the mind at becoming burdenſome to the community, and which ſtimulates men to render themſelves independent of charity, is, in a great meaſure, loſt ſight of. Encouraged and ſupported by the example of ſuch numbers, the paupers in England are become callous to every feeling of ſhame; and thus a fund, which was originally intended ſolely for the ſupport of the aged and infirm, is now ſwallowed up by the lazy and diſſipated; forms an incentive to vice and idleneſs; and does immenſe miſchief to the community, not only by keeping a number of perſons idle, whoſe labour would add conſiderably to the common ſtock, but by laying a heavy tax upon agriculture, and every ſpecies of induſtry.

From every information that has been collected by the Board of Agriculture, it appears, that, throughout the whole of England, the poor's rates are ſeverely felt, and loudly complained of; and the whole of the Surveyors, as well from their own obſervation, as from the evidence of perſons reſiding in the different diſtricts, are of opinion, that a *radical reform* in the poor's laws is abſolutely neceſſary; and every perſon concerned looks forward, with a degree of anxiety and hope, to the deciſion of the Legiſlature upon the ſubject.

Perhaps, regulations ſimilar to what are eſtabliſhed in Scotland, might have the deſired effect, if introduced into England. It is very

very certain, that, to the North of the Tweed, the expence of ſupporting the poor is trifling, compared to what it is in England. The Statiſtical Account of Scotland, a work of uncommon merit, affords innumerable inſtances of the truth of this obſervation. In many pariſhes, where the number of inhabitants amounts to from 1500 to 2000, the expence of ſupporting the poor does not exceed from 40 to 50l. yearly, a great proportion of which is collected at the church-doors.

There are indeed inſtances, in which the poor's funds in Scotland amount to a great deal more; ſuch as large towns, and pariſhes where ſums of money have been mortified for that purpoſe: But, even in theſe caſes, it is not underſtood that the ſums expended in that way anſwer any uſeful purpoſe; on the contrary, it is ſuppoſed, and not without reaſon, that they do miſchief, as the lower ranks learn to depend upon that reſource: And it is always obſerved, that in pariſhes where money is mortified, and the funds ample, the number of poor exceeds what is met with in other pariſhes, equally populous and extenſive, that have no funds of the kind.

A. Z.

[To be continued.]

Queries on Vegetation.

The following QUERIES, as they form a part of the objects of the Board of Agriculture, fall, with peculiar propriety, to be diſcuſſed in the FARMER'S MAGAZINE. They certainly open a wide field for inveſtigation; and the CONDUCTORS indulge a hope, that they will be taken up by ſome of their enlightened Readers and Correſpondents.

I. *Concerning the Earth.*

1. What effect has the earth in promoting the growth of plants, and bringing them to perfection?

2. Is it of any farther ſervice, than to keep the plants ſteady and upright, and to contain at leaſt ſome part of the nouriſhment on which they live?

3. Are there not different kinds of ſoil, which ſuit different plants?

4. Is there any kind of ſoil, in which ſome uſeful plant might not be produced?

5. Are there any plants, which will grow perpetually in the ſame ſoil; and what are they?

6.

6. What is the reaſon of ſoils tiring of one ſpecies of plant, and yet producing another ſpecies vigorouſly?

7. Of what is a ſoil deprived, when it is ſaid to be exhauſted?

8. What are the component parts of the moſt fertile ſoil?

9. Will ſoils, in which there is no calcareous matter, produce grain or peas in perfection?

10. Whence is it that calcareous ſoils are ſo favourable to the growth of clover?

11. Muſt not ſoils, in order to be perfect, have the power of retaining a ſufficient quantity of moiſture?

12. What are the beſt means of giving them that property?

13. Are not ſoils, of too porous a quality, ſuch as thoſe which conſiſt almoſt ſolely of ſand or gravel, in a great meaſure barren, not only becauſe they hold no water, but alſo becauſe any manure put on them is ſoon carried down and loſt, before it has had time to operate?

14. At what time does the earth ſeem to be in the beſt ſtate for receiving the ſeed of plants?

15. If earth is buried for ſome time after it has been exhauſted, will it recover, in four or five years, its former fertility?

16. If it does recover its fertility, may that not be owing to the richneſs of the manure, on the ſurface being waſhed down to it?

17. What is the effect of expoſing ſuch exhauſted earth to the ſun, or ſhading it merely from its rays?

18. Is it of ſervice to change the ſeeds of plants from one ſoil or climate to another; and why? *

19. What ſoil is the beſt adapted for nurſery ground; and to what is the ſuperiority of ſuch ſoils owing?

20. How many crops will rich garden ground produce in a year, in the neighbourhood of London?

21. What is the beſt rotation of crops in ſuch ground?

22. How many ſouls will an acre of garden ground, properly cropt, maintain?

II. *Concerning the Air.*

1. What effect has the air, in promoting the growth of plants, and bringing them to perfection?

2. Is pure air neceſſary for that purpoſe?

3. Will fruit trees produce fruit in London? or, within what diſtance from that metropolis are the different kinds of fruit produced in perfection?

4.

* In Flanders, they are ſaid to prefer flax-ſeed from Sweden or Ruſſia; and in Sweden and Ruſſia, flax-ſeed from Flanders.

4. Do plants draw the whole, or any part of their nouriſhment, from air?

5. Does the earth, when fallowed, attract any ſubſtance from the air favourable to vegetation?

6. Do roots, as turnips, potatoes, &c. extract nouriſhment from the air by their ſtems or leaves, and hence exhauſt the ſoil leſs than grain? or do they fertilize land by the ſubſtances they throw off, and leave behind them?

7. Do trees draw any nouriſhment from the air by their leaves?

8. Do not young trees thrive better, when their roots are near the ſurface, and not too deeply buried in the earth? Would they thrive in heaps of ſtones, which, it is ſaid, has been ſucceſsfully tried in France?

9. When plants are raiſed under glaſſes, how often ought freſh air to be admitted?

10. If no freſh air were admitted, would the plants grow languid, or periſh?

11. Do plants thrive as well kept in glaſſes, as in the open air, the temperament being equal?

12. Does there ſeem to be any ſympathy or antipathy between plants; or any natural diſpoſition in ſome plants to thrive when growing near to certain others; and the reverſe? *

13. Are there plants that grow well under the ſhade of others; and what are they?

14. What are the effects of thunder, or of lightning, or any change of air thereby occaſioned, upon plants?

15. What are the effects of ſea air, and the ſaline particles which it contains, upon plants?

III. *Concerning Water.*

1. What effect has water in promoting the growth of plants, and bringing them to perfection?

2. What kinds of water are favourable, and what are injurious, to vegetation?

3. What has been the effect of watering young or old plants with hard water?

4. How often are garden plants obliged to be watered in dry ſeaſons?

5. What is reckoned the fitteſt time for watering them, and why?

6. Does the ſap in trees flow all the year round, or during what ſeaſons?

* It is ſaid, that hops and potatoes do not agree together.

7. Does any water perſpire through the bark of the tree, or from the leaves?

8. What is the effect of dew upon plants; and to what extent is it favourable to vegetation?

IV. *Concerning Light and Heat.*

1. What are the effects of light and heat, in promoting the growth of plants, and bringing them to perfection?

2. Are any plants raiſed totally in dark places? Do they produce flowers or fruit in that ſituation?

3. Is not light eſſentially neceſſary to give plants their proper colour and flavour?

4. Does not heat and light increaſe ſaccharine matter in grain, and in that reſpect bring plants to greater perfection?

5. In raiſing plants from cuttings, is it not neceſſary to keep them in the dark, until they take root?

6. Do not ſeeds, that lye long upon the ſurface of the ground uncovered, periſh from the light and heat?

7. Do not plants ſucceed better when tranſplanted in the evening, and in cloudy weather?

8. How does the heat of ſtoves anſwer, compared with the heat of the ſun?

9. What is the effect of heat from ſteam, compared to that of fire?

10. What are the effects of hot walls, in promoting vegetation? and is the effect aſcertained, of making fruit walls black, ſo as to imbibe more heat during ſunſhine?

11. What is the reſult of a practice in Denmark, by which, to keep back the bloſſoms of their fruit trees, they cover them, in the Spring, in the day-time, and expoſe them at night?

12. Has the experiment been tried, of plants being ſhut up in a dark place, with only one hole in it, into which the light was admitted, to ſee whether the plants would bend to the light?

13. Are trees better nouriſhed on their ſouthern than on their northern ſide, and are the inner circles thickeſt to the ſouthern than to the northern aſpect?

14. Do plants grow moſt in the day or in the night time?

15. Will vines produce leaves and fruit, in a hot-houſe, in froſty weather, if their roots are not protected from the froſt?

V. *Concerning Manures, or dead organized Matter.*

1. What effect have manures in promoting the growth of plants, and bringing them to perfection?

2.

2. What are the effects of the different kinds of manures, of which you have had experience?

3. What is the proper time of applying thoſe manures?

4. What is the proper mode of application; mixing them with the ſoil, laying them in drills, or top dreſſing?

5. Do thoſe manures promote the growth of plants, by making the ſoil more porous and open for their roots, by exciting a fermentation in the ſoil, by affording nouriſhment to the plant itſelf; or in what manner do they operate?

6. In order that manures may be uſeful, is it not neceſſary that the ſoil on which they are laid, ſhould have a conſiderable degree of tenacity?

7. Is it better to mix a great quantity of manures together, into a compoſt, or to lay them on ſeparately?

8. What is your opinion of compoſts of manure and earth?

9. Do you know of any practices by which the quantity of manure could be increaſed?

10. What manures are found to anſwer beſt for the different kinds of ſoil?

11. What are the effects of dung and other manures, upon the taſte, flavour, and wholeſomeneſs of vegetables?

VI. *Concerning Culture.*

1. What effects has the culture of the earth on the growth of plants, and bringing them to perfection?

2. Is not earth, the more it is cultivated and pulverized, proportionally the more favourable to the growth of plants?

3. Do not young trees, when tranſplanted, grow better if the ſoil has been ploughed, or trenched, and thoroughly pulverized?

4. Is it not better for young trees, that potatoes, turnips, or other vegetables, ſhould be raiſed amongſt them; and how long ſhould that be practiſed?

5. Is the advantage of that practice owing to the freer admiſſion of air or water, to the roots of young trees; or what other benefit can be aſſigned?

6. Is the earth as thoroughly pulverized by ploughing and harrowing, as when dug with the ſpade?

7. What is the difference of expence *per* acre, in the two modes of cultivation?

8. Would the difference of produce make up for the difference of expence?

VII. *Concerning Subſtances in the Earth, injurious to Vegetation.*

1. What are the ſubſtances moſt inimical to vegetation, in different ſoils; and how do they operate?

2. What is the beſt mode of counteracting the injury to vegetation done by thoſe ſubſtances?

3. Is there not an aſtringency in peat moſs, hoſtile to vegetation? How is that to be corrected?

4. What is the reaſon for putting American, and other foreign plants, into peat? and are there any other kinds of plant, as cellery, &c. that thrive particularly well in that ſoil?

5. Do trees, when their roots reach a ſtratum full of aluminous or metallic particles, decay, or are they arreſted in their progreſs; and what meaſures ought to be taken when that happens?

VIII. *Concerning Vermin, noxious to Vegetation.*

1. What are the kinds of vermin in the ſoil, moſt hoſtile to vegetation?

2. Is there any mode of deſtroying them?

3. What is the cauſe of the blight in wheat, and other grains, and the beſt means of guarding againſt it?

4. Are bees favourable, or otherwiſe, to the growth of thoſe plants, from the flowers of which they extract their honey?

5. What ſeaſons are ſuppoſed to be the moſt favourable for the production of the different kinds of inſects? and are there any precautions that can be taken againſt them?

6. Are there any plants, or ſhrubs, the ſmell of which is deſtructive to inſects?

7. Have the foreign plants brought into this country, introduced any inſects peculiar to themſelves; and have they afterwards become injurious to any of our native plants?

8. Has fumigation with tobacco, and other ſubſtances, been found a complete remedy for vermin.

9. Will water, mixed with coal-tar, deſtroy inſects either in the ground or on plants? *

10. In what reſpects are moles injurious to vegetation; and what are the beſt means of deſtroying them?

IX.

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* A reſpectable Naval Officer has found it to anſwer completely, both in England and in the Weſt Indies. He puts ſome tar in a barrel, fills it with water, ſtirs it well about, and in a few hours it will be fit for uſe. It effectually deſtroys that kind of vermin that attacks gooſeberry buſhes, and, by merely watering the ground, it kills worms, grubs, &c. at a conſiderable depth under the ſurface. It might be worth while to try it on graſs ground injured by worms, ants, &c.

IX. *On the improvement of Plants, by introducing new Varieties.*

The following Queries, with regard to the Improvement of Plants, by introducing Varieties, through the medium of cultivation, drawn up by an intelligent Friend to Agriculture, are alſo particularly recommended to the attention of the Reader.

1. Are there any means of increaſing the quantity of ſeeds, in the ſeveral particular ſpecies of plants, ſo as to render them more numerous? and if there are, what are they?

2. Are there any means of increaſing the ſize of the cotyledons of plants, ſo as to make them contain a larger quantity of ſaccharine, or farinaceous matter, whether they be covered only with membranes, as in the gramina, or likewiſe with an additional hard covering, as in nuts?

3. Are there any means of increaſing the ſaccharine matter in fruits?

4. Are there any means of increaſing the ſize of fruits, without rendering them more watery?

5. Are there any means of increaſing the flavour of fruits?

6. Since the flowers of ſeveral plants are uſed in dying, ſuch as the carthamus, or, in medicine, ſuch as the crocus; what are the methods of rendering plants more prolific in flowers, or of increaſing the number of flower leaves, or parts uſed for dying, or in medicine?

7. Are there any means of increaſing the herbaceous matter in a plant, ſo as to make the quantity of it greater, as in cabbages?

8. Are there any means of rendering the herbaceous parts of a more ſaccharine, or otherwiſe nutritive quality, ſo as to feed a greater number of animals, or to render one animal fat more quickly?

9. Are there any means of producing a larger quantity of root, whether tap or tuberoſe?

10. Are there any means of rendering any tap or tuberoſe root of a more nutritive quality, ſo as to feed a greater number of animals, or to render one animal fat more quickly?

*** Communications upon the Subjects of the above Queries, addreſſed to the Publiſher, will be thankfully received, and have the moſt reſpectful attention paid them.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

GENTLEMEN,

IF you think the following ſtatement of the fiars of Eaſt Lothian, for the laſt eight years, deſerving of notice, you are at liberty to inſert them in your Magazine. They include a period almoſt unexampled in our hiſtory; and, in all probability, will not be unacceptable to many of your readers. Should that be the caſe, I will ſend, for inſertion in your next Number, a complete ſtatement for upwards of a century back.

I am always, Gentlemen, yours, A. B.

Fiars of the County of Haddington, from 1794 *to* 1801.

CROP 1794.

	Beſt.			Second.			Third.		
	l.	s.	d.	l.	s.	d.	l.	s.	d.
Wheat	1	5	6½	1	3	11½	1	2	3½
Barley	1	2	1½	1	1	2	0	19	8½
Oats	0	15	2½	0	14	10	0	14	1½
Peas	0	16	4½	0	15	6	0	14	9½

CROP 1795.

Wheat	2	6	9	2	4	4½	2	0	4½
Barley	1	5	2½	1	3	10½	1	1	11
Oats	1	1	3½	0	19	5½	0	18	2½
Peas	1	0	4	0	18	9	0	17	9½

CROP 1796.

Wheat	1	7	2½	1	5	10½	1	4	5
Barley	1	5	0½	1	2	8½	1	0	6½
Oats	0	16	1½	0	14	11	0	14	0
Peas	0	14	3	0	13	5½	0	12	8½

CROP 1797.

Wheat	1	4	9½	1	3	0½	1	1	7
Barley	0	19	4½	0	17	9½	0	15	5
Oats	0	14	2	0	13	0½	0	12	0
Peas	0	13	1½	0	12	4½	0	11	8

CROP

	Best.	Second.	Third.
Crop 1798.	l. s. d.	l. s. d.	l. s. d.
Wheat	1 3 8	1 2 8	1 2 0
Barley	0 19 5½	0 18 6	0 17 9½
Oats	0 15 0½	0 14 8	0 14 0½
Peas	0 12 10	0 12 5	0 11 11½
Crop 1799.			
Wheat	2 3 9	2 0 9½	1 14 8
Barley	1 14 8	1 11 11	1 9 2
Oats	1 12 4½	1 8 7½	1 5 0½
Peas	1 18 1½	1 13 1½	1 8 6½
Crop 1800.			
Wheat	3 7 3½	3 3 1½	2 15 3½
Barley	2 12 5	2 6 11½	2 2 4½
Oats	1 18 11½	1 15 8	1 10 9½
Peas	2 6 2½	2 1 6	1 16 8½
Crop 1801.			
Wheat	1 17 5½	1 15 7	1 12 4
Barley	1 8 5	1 6 1½	1 4 4
Oats	0 18 7½	0 17 4½	0 15 11
Peas	0 17 10½	0 16 10½	0 16 0½

All Sterling Money.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

On the Working of Oxen.

GENTLEMEN,

In No. IX. of your Magazine, I requeſted information concerning the working of oxen in pairs; from which, a rural œconomiſt in your laſt Number takes occaſion to ſay, that "I ſeem unacquainted with the working of oxen, and have miſunderſtood what has been formerly ſtated on that ſubject," I cannot perceive, in my letter, any vaunting of knowledge. I conceive, that aſking for information is an acknowledgement of ignorance. I can aſſure him, if he does not know it, that there are many thouſands of farmers, who are at leaſt as ignorant on that ſubject as I am; and if they receive only ſuch anſwers as R. E.'s to their inquiries, are not likely ever to know much more. It does not appear, however, that I have miſunderſtood what has been formerly ſtated on that ſubject. That "the comparative ſtatement of the expence of horſes and oxen for farm labour, vol. ii. p. 197, was founded on

the idea, that it would require eight oxen, three years old, to perform the like work as can be done by two horſes;" if not nonſenſe, is at leaſt nothing to the purpoſe. I took *Rrr*'s ſtatement—"The annual expence of one working ox, is 10l.; the annual expence of one working horſe, is 20l. 11s. 8d." From this I have ſaid, that "your correſpondent *Rrr* makes the expence of a pair of horſes more than double that of a pair of oxen." Now, *if* a pair of oxen will perform only two thirds as much work as a pair of horſes, the advantages of oxen will be immenſe. This R. E. calls a groſs miſtake. I ſuppoſe, however, he means that a pair of oxen cannot perform two thirds as much work as a pair of horſes; but, on this, I do not think he is at all competent to decide. I am ſtill inclined to think, that eight oxen to one plough is ridiculous, yoked in any manner he pleaſes: That two horſes will be leſs expence than ſuch a team, I think has been fully proved. But I ſuſpect very much, that oxen are (in the eyes of this gentleman and many more) in the ſame predicament that horſes were, not a great many years ago, and ſtill are, in ſome parts of the country (Middleſex). I dare ſay, if R. E. was to talk to thoſe farmers who work teams of ſix horſes with two drivers, of working only a pair of horſes without a driver, they would moſt likely think him unacquainted with the working of horſes, and ſay it was a groſs miſtake to ſuppoſe that two horſes could do the work.

Your correſpondent, vol. ii. p. 281, ſays, "It is no uncommon thing to ſee, in this part of the iſland, a pair of oxen, without a driver, as tractable at the plough as horſes, and performing nearly, if not *quite as much* work as a pair of horſes." I am fully as much inclined to believe this gentleman as R. E.; more particularly, as he agrees with what I have learnt from others.

I think it very probable, that draught oxen are not brought to that perfection they might and would be, if generally uſed. I have ſeen, in a diſtant country, bulls of a light active breed uſed for the ſaddle. They are very tractable, and travel with great agility and ſwiftneſs. Might not our ſtrong breed be improved by croſſing with ſuch, in the manner our horſes have been brought to ſuch great perfection?

With the greateſt deference, I would ſuggeſt to you, whether it might not be better to ſuppreſs thoſe letters, or parts of letters, written merely for the purpoſe of finding fault, particularly when ſet off with petulant obſervations on the knowledge or abilities of your correſpondents. There are ſeveral of that deſcription in your Numbers; amongſt others, I think that of a *Common Farmer*'s remarks on A. B.'s hints reſpecting the conſtruction of farm offices, in your laſt number. Theſe hints C. F. allows to be very good, but differs with A. B. on the reaſon why, and takes occaſion,

ſion, from thence, to pour a torrent of abuſe on A. B. for his ignorance, &c. This man of practice, no doubt, thinks himſelf very witty on the "leaving ſpaces for carrying off the moiſture." He ſeems to ſuppoſe A. B. meant to leave gutters for the water to run off by. He is very wiſe with his true reaſon, "to admit of ventilation." Does he know, that a principal uſe of ventilation, is to carry off the moiſture, which corn, or any thing elſe, muſt throw off while drying? I am, Gentlemen, yours, &c.

K.

The Conductors return their thanks to the author of this communication, and requeſt a continuance of his correſpondence.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

On the Swediſh Turnip, and the Keeping of Potatoes.

GENTLEMEN,

I have purchaſed, regularly, your Farmer's Magazine ſince its firſt publication, and congratulate you upon the rapid progreſſive improvement of its communications, which, I am confident, muſt benefit the community moſt eſſentially. Some of your correſpondents begin to ſubſcribe their names; and I hope the practice will become more general. I conſider this to be of much importance; as any experiment, vouched by a reputable agriculturiſt, ſtamps it at once with ſuch reſpectability, as to induce others to follow the example much more readily than when A. B. or C. do ſo.

It is with much ſatisfaction I obſerve, in your laſt Number, that B. C. brings under public view the roota baga, or Swediſh turnip, which, I have often regreted, was not generally cultivated in the northern part of the kingdom, as it is ſo much more hardy than any other turnip, that the moſt beneficial effects muſt enſue from the culture of it, during our ſevere Winters; for no froſt injures it. If hares, or any other animal, eat a part of a turnip, the remainder continues firm and ſucculent as before: nor are theſe qualities deteriorated, when this turnip ſhoots, which is a death-blow to other turnips. Another advantage ariſes from planting the Swediſh turnip, that early in the Spring, when fodder is ſcarce, and before the ſpring of graſs, the leaves yield a nouriſhing food for ſtock, of ſo delicate a nature, that they are even an excellent green for the table. The weight per acre (as B. C. obſerves) is not ſo great as that of the common turnip; but I conſider this as more than compenſated for, by its being much more nutritious (and, of courſe, leſs will be eat of it) independent of the other advantages I have ſtated. I had the good fortune to lodge in the ſame houſe, for ſome weeks, with a moſt intelligent man,

man, about eighteen months ago, who farmed about 1000l. or 1200l. a year in Nottinghamſhire. I do not at preſent remember his name; but it is mentioned very honourably in the report of that county to the Board of Agriculture, which I cannot juſt now refer to. This gentleman confirmed all the qualities, abovementioned, attending the cultivation of the Swediſh turnip. He fattens yearly a great number of ſheep; and, after ſeveral years experience of the ſuperior advantages of this turnip, he had no other kind. It is neceſſary to ſow theſe turnips earlier than the common kind; and, by way of experiment, he ſowed a quantity of ſeed in a nurſery, which he afterwards tranſplanted into his fields, after they had been thoroughly dreſſed and cleaned. They grew ſo quickly, after being tranſplanted, that in conſequence of the land being in high order, he ſaved a hoe-ploughing they would have required in the common way, by ſowing the ſeed at once in the fields, which, together with the ſaving of ſeed, compenſated for the extra labour of tranſplanting. This mode of ſowing the ſeed in a nurſery, will prove of very conſiderable importance, when other farm labour, or any other cauſe, prevents a poſſibility of having the land properly prepared to receive the ſeed at once.

Several of your correſpondents regret that potatoes cannot be better preſerved over year. This root is much uſed in Lancaſhire by all ranks of people; and I never failed to eat it in high perfection in that county during all ſeaſons of the year. How do they preſerve potatoes there? Or how do the lower claſſes in Ireland (who eat nothing elſe) preſerve them? I do not think pitting them *under* ground ſo good a way (the damp tending to make them ſhoot) as having them *above* ground, well bedded with ſtraw, dry fern, or heath, and effectually covered with one or other of theſe, and turf to keep out the froſt. A clay or earthen houſe (which does not coſt much) is the warmeſt of all buildings in Winter, and the cooleſt in Summer. Such a houſe anſwers well for potatoes. In ſome parts of the country, this root is uſed for all live ſtock, even horſes and ſheep; and I hope the practice will become more general.

If theſe hints can be of the ſmalleſt uſe, *in any way*, it will afford me much ſatisfaction. Though I approve ſo much of your correſpondents ſigning their real names, I ſhall not do ſo. To the *many*, it is unknown; and the *few*, who are acquainted with me, know, that a great part of my life, until lately, was employed in very different purſuits from thoſe of agriculture. I give you *one* good authority (who may be inquired after) reſpecting the Swediſh turnip; and I only point out the ſources from which information may be obtained how to preſerve potatoes, and ſuggeſt my own ideas.——*June* 1802. G. C.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

GENTLEMEN,

In a late excurſion through the county of Moray, I was much gratified with a view of a very extenſive and ſucceſsful operation in the drainage of a loch, executed by Mr William Young; and as an explanation of it may be intereſting to thoſe who may be induced to ſimilar undertakings, I hope you will have the goodneſs to give this a place in your very uſeful Magazine.

The Loch of Coot, which is the ſubject of this experiment, is part of a farm held in leaſe from the Earl of Fife by Mr Young, and covers upwards of one hundred and twenty acres; but, beſides this, a hundred acres more adjoining to it was ſo injured, as not to be capable of cultivation, though of excellent ſoil. The neareſt point of the loch was twenty-two hundred yards from the ſea, having a high beach intervening, and the level of the ſea, in high tides, equal to that of the loch, and, conſequently, the fall to be obtained was only at low water: the practicability of the operation had always been held in a very doubtful point of view, till Mr Young's enterpriſing ſpirit and perſeverance has now accompliſhed it fully. The cut, which is upwards of four thouſand yards in length, was begun at the level of low water, and carried upwards to the depth of ſix feet, the width at top thirty, and at bottom ten feet; and, to prevent the ſea from flowing up the cut, a flood-gate is placed near its outlet, which ſhuts and opens by the ſalt and freſh water alternately; *i. e.* at high water, the ſea is excluded; and when the tide ebbs, the preſſure of water collected in the cut opens the gate, and is quickly diſcharged. This is of material uſe in another way. At the entrance of the cut to the ſea, its mouth would be obſtructed by the blowing of ſand; but the water collected in it while the ſluice is ſhut, (at times, when the ordinary run is not ſufficient), has force enough, when let out, to clear its paſſage through the ſand.

What makes this undertaking the more remarkable, is, the greatneſs of the outlay of money, and the ſhortneſs of the leaſe; the former being *one thouſand pounds*, and the endurance of the leaſe only for *nineteen years*: And it is not only the ground gained by Mr Young, which is the reſult of the operation, but, by affording a fall and outlet for the drainage of a conſiderable tract adjoining, it will ultimately prove advantageous to many of the neighbouring farms.

In conſequence, alſo, of its ſucceſs, it is now in comtemplation to drain the great Loch of Spynie, which lies near to, and in a ſimilar ſituation; and, if carried into effect, will be attend-

ed

ed with great benefit to the different proprietors, as well as to the neighbouring country at large.

To have entered into a detail of the particulars of this undertaking, would perhaps have been a treſpaſs on the limits of your department allotted to ſuch ſubjects; but I hope the merits of the buſineſs will be a ſufficient apology for troubling you with its inſertion; and the reſult of Mr Young's experiments on the ground thus acquired from the loch, may, at a future period, be the ſubject of further communication. T. T.

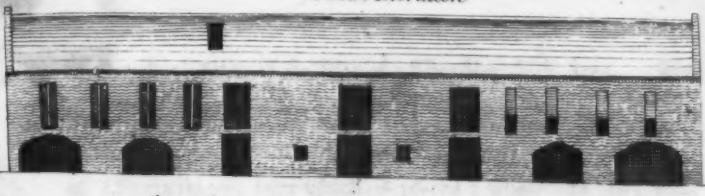
FOR THE FARMER'S MAGAZINE.

Explanation of the Plan of a Thraſhing Mill Barn, after the Pattern of one erected at Mr Erſkine of Mar's farm of Lornſhill, near Alloa, in the County of Clackmannan.

A, Hovel for cattle, 20 feet by 17 feet 6 inches.
B, Place for receiving the chaff, as it is blown from the fanners C, D, 20 feet by 12 feet 6 inches.
C, Firſt pair of fanners. D, Second pair of fanners.
E, Place for ſifting the corn, as it comes from the fanners, 7 feet by 3 feet 9 inches.
F, Place for the clean grain, 11 feet by 13 feet 6 inches.
G, Place for the machinery that drives the fanners.
H, Place where the ſtraw falls from the ſhakers, 2 ſtories high, 10 feet 8 inches.
K, Place for laying up the ſtraw, 2 ſtories high, 20 feet by 18 feet.
L, Another ſtraw houſe, 20 feet by 16 feet, which may be uſed for cattle.
M, An open yard for coals.
N, A kiln 10 feet ſquare within.
O, A ſhade where the ſtraw cutter is placed, 27 feet by 14 feet.
P, The horſe-courſe of the mill, 27 feet 4 inches ſquare inſide.
Q, A ſhade for a bruiſing mill, 14 feet by 17 feet 3 inches.
R, A paſſage for cattle 8 feet wide
S, A paſſage for carts, 13 feet 6 inches wide.
T, The bay of the barn for unthraſhed grain, 20 feet by 36 feet 6 inches.
U, Gangway to the granary.
V, The granary 20 feet by 32 feet 6 inches.
W, Gangway to the kiln.
2. Place where the weak grain falls.
3. Place where the heavy grain falls.
4. Place where the weak grain falls.
5. Place where the heavy grain falls.

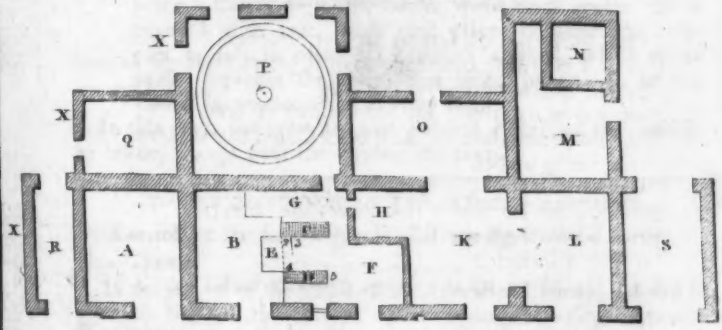
6. Feeding

South Elevation

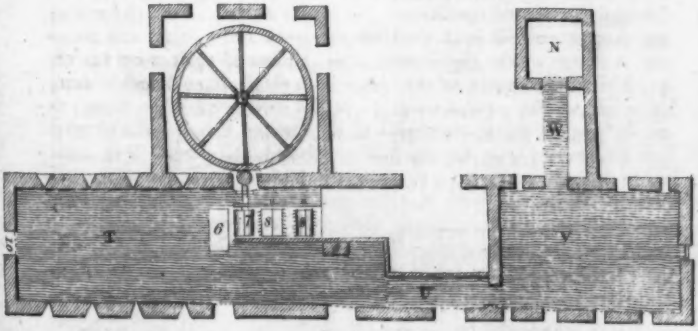


Elevation of the West-end marked XXX.

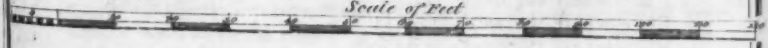
Ground Plan



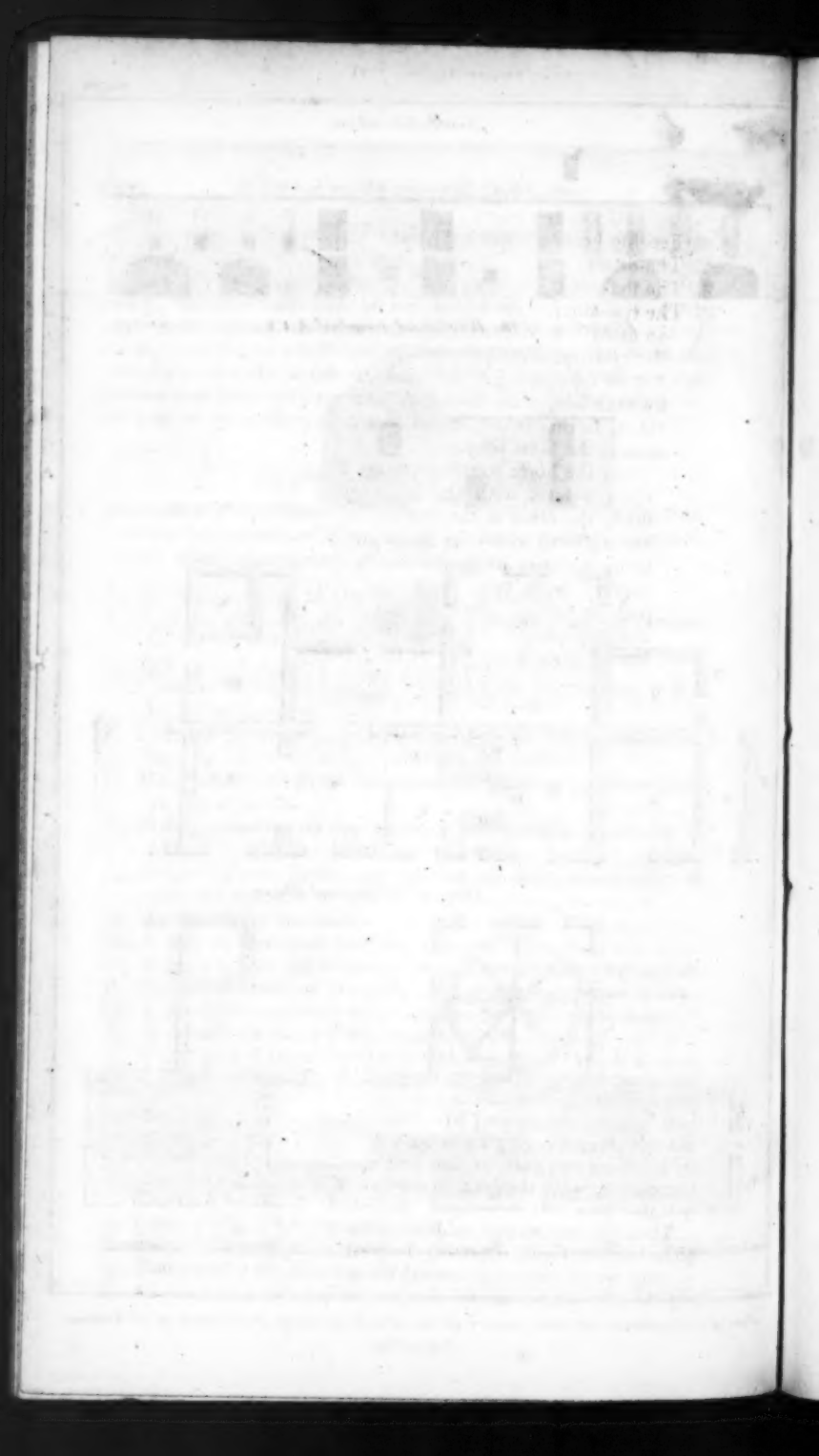
Plan of the Second Floor



Scale of Feet



Plan of a Threshing mill Barn erected at the Farm of Lornshill, the Property of J.F. Erskine Esqr. of Mar.



6. Feeding board, 8 feet by 3 feet 6 inches.
7. The drum.
8. The ſhakers.
9. The trap-door, over which is placed a wheel and axle, with an endleſs rope for taking up the clean grain in ſacks for the granary.
10. A door for putting in the ſtacks, ſo that they may be ranged on each ſide, with a paſſage left up the middle between them, ſo that two different kinds of grain may be in the barn at the ſame time.

N. B. Over the horſe courſe there are two ſets of joiſts, one ſet upon a level with the beam which ſupports the upright ſhaft, the other at the foot of the couples: On theſe, timber is placed to dry for huſbandry purpoſes; and the arches being 2 ſtories high, the horſes work much cooler. It is covered with tyle, with reed placed between the couples or raſters, after Mr Erſkine's method, which effectually prevents the tyles from being blown off, or the houſe incommoded by drifting ſnow.

In this way, the tyles are not pointed either on the outſide or inſide, except near the rigging and eaves.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

Remarks on the Review of Mid-Lothian Agricultural Survey.

GENTLEMEN,

IN the Review of the Mid-Lothian Agricultural Survey, inſerted in your laſt Number, the following remarks appear, reſpecting Appendix No. 9, annexed to that publication.

"We are no great friends to corn-laws, of which this author ſeems particularly fond; and we cannot help remarking ſome of the inconſiſtencies into which warm advocates for theſe laws are ſometimes drawn. At one time, page 80 and 81, he acknowledges, that there have been years in ſucceſſion, in which corn could have been imported much cheaper than it could have been ſold at in this country; whence, he would ſeem to infer, that if exportation had not been prohibited at theſe ſeaſons, or if importation had been allowed, our own agriculture muſt have gone to ruin. To ſhow, however, that the encouragement of our own agriculture, through the corn-laws, is abſolutely neceſſary, he almoſt immediately obſerves, how little dependence is to be placed upon this ſaid cheap foreign grain in times of home ſcarcity; obſerving, that we know our own ports to have been open for importation for years in continuance, when the grain in our own markets remained extravagantly high."

Theſe obſervations were made in conſequence of what the author had often heard ſet forth, reſpecting the great advantage a free importation of grain would create in promoting manufactures, as it would make living cheaper, and, of courſe, cheapen the price of labour; and as the climate,

climate, and no inconſiderable part of the ſoil in this country, is unfavourable for producing grain, more ſhould be kept in graſs, ſince the increaſe of manufactures would inſure a conſumpt for all the butcher-meat that could be reared.

The Reviewer very juſtly obſerves, that warm advocates are often led to be inconſiſtent; and might have added, when meeting with opinions not conſonant to their own, can, by a trifling alteration, throw a gloſs upon words, that make them bear a meaning very different from what they were intended to convey; at leaſt, to countenance a concluſion very different from what ſhould have been drawn. The words are as above cited, only all in the ſame paragraph, thus: "There have, no doubt, frequently been times, for years together in ſucceſſion, that grain could have been imported at a lower rate, than it could have been ſold at in this country any time for an hundred years back; at the ſame time, we know that our ports have been open for importation for years in continuance, when the grain in our markets remained extravagantly high:" By which, in whatever ſenſe the words may have been taken, was meant to be ſhown, that though grain was often to be got from abroad much cheaper than we could raiſe it at home, yet it was not always to be depended upon.

It is acknowledged, the paſſage is not ſo explicit as it ought to have been; at the ſame time, it does not appear ſo very obſcure as ſhould, in a fair view, have led to the explanation that has been given: And, ſurely, there is no inconſiſtency in having admitted that grain could, at times, be got from abroad, and for years running, at lower prices than it had been in uſe to ſell at in this country; and afterwards giving an inſtance, to ſhow that grain was not always to be got from abroad at a cheap rate, the natural inference from which is, that a free importation, in theſe times of great cheapneſs abroad, when there was great plenty at home, would have glutted the market, and diſcouraged the raiſing of it in this country; and that a free importation did not afford the proſpect of giving permanent cheapneſs, it having been found, that we frequently had grain cheaper at home than it was to be got elſewhere; and, ſhould our home produce be leſſened by a check to agricultural exertions, the country, from having greater dependence on a foreign ſupply, might oftener be in ſcarcity, and to a greater extent, than otherwiſe would have happened.

How far the corn laws may, or not, be the wiſeſt meaſure for promoting the intereſt of the country, the author of theſe obſervations does not take upon him to decide; only this he knows, that they have, not unfrequently, in his remembrance, prevented the markets here being glutted with grain from abroad, when we were in no need, and the price from falling to a rate that would have very much diſtreſſed the farmer: They have alſo, upon many occaſions, prevented prices becoming ſo extravagantly high, as otherwiſe they would; for, in general, until of late years, the price of grain never continued long above the price that rendered exportation unneceſſary, or below the price that put a ſtop to importation, which has tended very much to keep the price of grain from fluctuating in ſo great a degree as would otherwiſe have taken place; a circumſtance of the utmoſt importance to the labouring claſs of the people:

people: Therefore, until we have a greater proſpect of being bettered by a change, than has hitherto been made appear, it is the writer's opinion that we ſhould continue as we are.

He is aware of incurring the imputation of preſumption, and expoſing himſelf to no ſmall degree of ridicule, for pretending to hold an opinion, in the face of ſuch well eſtabliſhed authority, as that of the author of the Wealth of Nations, and the author of the Tweeddale Agricultural Survey. But as infallibility has never been the portion of any of the ſons of men, and as the wiſeſt have found cauſes operate very differently from what they had conjectured, ſo the axioms of theſe great men cannot be relied on as a certain rule. It is indeed true, that the force of novelty, and man's conceit, is ever prompting him to interfere, when, by ſo doing, he too often mars what he meant to mend; yet this interference, at times, becomes very neceſſary.

Dr Smith's maxim was, and in this age it has become a favourite idea, applied almoſt indiſcriminately, that every thing will find its own level; and ſure enough they will. But the level that many things would find, if left to themſelves, would ſoon approach nearly to annihilation; and, in this country, the level which the price of grain would find, was there no reſtraint on importation, with the addition of a little expence and remuneration, would be juſt what it ſells at upon the Continent, which is well known to have been, for years, at prices far under what is ſufficient to indemnify the grower in this country.

That cheap living will produce cheap labour, is very plauſible; but cheap living, unleſs other circumſtances correſpond, ſo far as experience has gone, does not produce cheap labour. As the wealth of a free people increaſes, ſo will the price of labour. Nay, what is more, and however great a paradox it may ſeem, it is found to hold true, that the lower the price of grain, under ſuch circumſtances, ſo much higher does the price of labour riſe. The preſent æra is a ſtriking inſtance of it. The price of meal, in the courſe of the laſt nine months, is reduced nearly two thirds, while the price of labour has increaſed more than a fourth; and for the laſt ſixty years, it has never failed to operate in the ſame manner, in ſome degree.

The Reviewer remarks farther, "If he (the Appendix writer) is ſo apprehenſive of the diſcouragement of agriculture, from the free importation of the produce of land from other countries, why is he not in abſolute deſpair as to the fate of the old cultivated lands in this country, in conſequence of the competition in the market, from the produce of theſe new lands, which the favourable effect of the corn laws has brought into high cultivation?" With all deference to the Reviewer's more acute diſcernment, he cannot ſee that the produce of our own lands has the ſmalleſt chance to bring grain to ſuch low prices as might take place by a free importation; nor, in his humble opinion, is there the ſmalleſt compariſon betwixt the footing on which the produce of the old and newly cultivated lands ſtand with one another, and that wherein they do ſo with the produce of other countries. The produce of old and new cultivated lands are all obviouſly on the ſame footing, ſubject to, and equally affected by every particular:

not

not ſo, in competition with grain from other countries, was importation free; nor can he perceive the leaſt ground for deſpair on that head. What is abundantly ſufficient to fortify his mind againſt ſuch apprehenſion, notwithſtanding the Reviewer's ſurmiſe, that ſuperiority of ſkill in agriculture has prevented the depreciation in the value of money from ſo effectually appearing in raiſing the price of grain, as increaſing the wages of labour, is, that whether it may proceed from an increaſe of people, a greater conſumpt by horſes, or the great extent of fertile land laid into graſs, and kept in perpetual meadow and paſture, the grain raiſed in this country, has, for the laſt fifty or ſixty years, been more and more falling ſhort of what uſed to be produced in former times, over ſerving the conſumpt of the country; and he can aſſure the Reviewer, that his apprehenſions, from what he has had the opportunity to obſerve, are very different, being thoroughly perſuaded, that, unleſs agricultural improvement become more univerſal, and greater exertions be made, than is yet likely to take place, for making the waſte lands more productive, and remedying, in a great meaſure, that unproductive ſyſtem which prevails to ſo enormous a degree, in keeping ſuch an extent of the beſt ground perpetually in meadow and paſture, the produce of this iſland will become more and more leſs adequate to the ſubſiſtence of its inhabitants; and that nothing will ſo effectually promote theſe beneficial purpoſes, as grain riſing in value in the ſame proportion as other things.

The late very high prices gave riſe to an idea, that grain was, and would continue to be, on a footing, in that reſpect, with other commodities; but, from what in former times has invariably taken place, this is greatly to be doubted. When the very high prices, which grain ſold at during the late ſcarcity, are compared with the prices of grain, in like times, a century back, they bear no proportion to the depreciation that has taken place in the value of money. And in comparing the riſe in the prices of grain, in later times, prior to 1790, with the decreaſe in the value of money, they are not at all in proportion. Take thirty years back from that period, and the average price of meal in the laſt fifteen, will be found cheaper than the average price of the firſt, notwithſtanding that money had been declining in value during the courſe of the whole thirty, and was conſiderably more depreciated in the laſt fifteen than it was in the firſt; and, had the ports been open for importation during that period, there can be little doubt that the value of grain would ſtill have been more diſproportionate. A ſtriking inſtance occurred in favour of this opinion in 1783: 'An eminent and active corn merchant, had the addreſs to keep the ports open for wheat all that Winter, and great part of the Spring, (when a remonſtrance was made againſt the meaſure), although the wheat of this country was ſelling under 20s. the boll; and wheat would never have been higher in this country, ſo long as it could be got from abroad to afford a profit here at that price, had the ports not been ſhut againſt it.

As theſe remarks may be unworthy of a place in your very uſeful Publication, excuſe the trouble, and diſpoſe of them as you think proper.

Midlothian, July 1802. T. S.

ORIGINAL COMMUNICATIONS.

PART II.*

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

Obſervations upon the Uſe of Lime and Compoſt Middens.

(Continued from page 82, and concluded.)

GENTLEMEN,

I LEARN, with much ſatisfaction, that the account of my Lime Huſbandry, inſerted in the Ninth Number of your Work, has been favourably received by ſeveral of your readers. This ſtimulates me to continue the detail of my experiments in that important branch of rural ſcience, as formerly promiſed; and if a ſingle individual is benefited by theſe ſtatements, I ſhall account the time ſpent in making them out, to be well employed.

Field, No. 9.—Soil chiefly thin clay, incumbent upon a bottom of till; conſequently, ſubject to receive injury from wetneſs. This field had been ſeverely drubbed by the preceding tenant; had been injudiciouſly ſtreighted, which is a fatal meaſure to ſuch ſoils; had been limed previous to the ſtreighting; but, at my entry, was wholly under crop, and in an exhauſted ſtate.

After being ſummer-fallowed, in as perfect a way as circumſtances permitted, this field was laid down in graſs, and depaſtured with cattle for ſeveral years. Lime (the greateſt part of which was in an *effete ſtate*) was applied upon the ſward during the Winter months; and, in February thereafter, the field was ploughed for oats. The crop was middling good; but, in the ſix ſubſequent years, it did not appear that much benefit was gained from the application. In the eighth year, however, the lime acted vigorouſly; a ſmall part of the field which remained unlimed, being at leaſt 50 *per cent.* inferior in crop, though the management, in every other reſpect, had been ſimilar.

* In anſwer to the inquiries of ſome reſpectable correſpondents, it is ſtated, that the Second Part of Original Communications, the Reviews and the Intelligence, are conducted by one perſon; and that the management of the Firſt Part is in the hands of another gentleman, who does not interfere with this department. N.

It is difficult to account for this ceſſation of action during ſo long a period, though, I believe, inſtances of the like nature are not unfrequent upon ſecondary ſoils. Whether a deeper ploughing had been given in the preceding ſeaſon, which might bring the lime to the ſurface; or whether the original poverty of the ſoil precluded the lime from operating, till it was aſſiſted by a copious application of dung, are circumſtances not eaſily aſcertained. In my opinion, the lime was brought into action by the dung beſtowed; though it would be raſh to ſtate, as a matter of fact, what, at beſt, is only a probable conjecture.

Field, No. 10.—Soil of various qualities. Part of it a thin loam; part, of a ſandy nature, and the remainder approaching to a thin clay; but all upon a bottom retentive of moiſture. After paſturing the field for one year, applied lime upon the ſward, at the rate of 40 Linlithgow barley bolls, or 240 buſhels per Scots acre. The lime was partly hot; but the greateſt part of it was effete, which muſt neceſſarily be the caſe when lime is *hutted*, unleſs the huts are completely covered. No difference, however, was diſcovered in the operation, from the ſtate in which the article was applied.

Firſt year—The crop was oats. The ſeaſon being exceſſively dry, little benefit was got from the lime.

Second year—Fallowed the field completely, and dreſſed it with dung, at the rate of fourteen double loads per Scots acre.

Third year—Sowed barley and graſs ſeeds. The crop of barley very good.

Fourth year—The field was depaſtured with cattle.

Fifth year—Ploughed for oats. Crop excellent.

Sixth year—Drilled the field with peas and beans, after two ploughings, which were managed as deſcribed in my former letter; the crop of great bulk, and produced fully nine bolls per acre.

Seventh year—Wheat was ſown; and, at this time, the crop promiſes to be a good one.

Field, No. 11.—Soil of an inferior kind of loam, upon a cloſe bottom. The year when this field was laſt under ſummer-fallow, applied lime to a part of it, by way of trial. Dung was given likewiſe. Sowed barley and graſs ſeeds. Took a crop of hay, and ploughed for oats. Every one of theſe crops was ſtrikingly ſuperior, where lime had been given: indeed, the ſuperiority was recogniſable at a conſiderable diſtance.

Field, No. 12.—Soil chiefly a heavy deep loam; ſome of it a ſtrong, tenacious red clay, but almoſt wholly incumbent upon a cloſe bottom.

Ploughed

Ploughed this field from old graſs, and ſowed it with oats. Summer-fallowed it in the ſecond year, and dreſſed it with lime, which was moſtly applied hot from the kiln; being drawn from the cart in regular ſized heaps of five pecks each, or thereby, and ſpread the moment it was ſlacked by rain, or atmoſpherical moiſture. About two thirds of the field received 50 barley bolls, or 300 buſhels per acre; the remainder from 60 to 70 bolls per acre; and the operation appeared to be in direct proportion to the quantity applied; nor was there any diſtinction diſcernible, betwixt what was applied hot, and what was completely effete; ſome of it, indeed, the ſeaſon being remarkably wet, was nearly in a mortar ſtate: The whole anſwered well, and operated immediately.

I noticed, in this field, that a few ridges, on which the lime was ſpread in a windy day, carried crops rather inferior to thoſe of the contiguous ones: I apprehend that the moſt valuable particles of the lime had been carried off; and would recommend, that ſpreading ſhould be diſcontinued, when a high wind ariſes.

Much difference of opinion having prevailed, relative to the quality of the ſeveral limeſtone quarries in my neighbourhood, I was induced to try lime from each of them, upon ſix adjoining ridges of the above field. Though a difference to the eye was viſible in almoſt every one of thoſe ſamples, yet the effect upon the ground was, in all of them, preciſely ſimilar; nor could the moſt accurate judge ſay which was beſt. The quantity applied in each caſe was the ſame; and the operations of laying on the lime, ſpreading it, and ploughing the ground, were all carried on in an uniform manner.

Field, No. 13.—Loam of different varieties, upon a bottom inclined to wetneſs, and the ridges lying in a broad and ſerpentine ſtate.

Ploughed for oats, next took drilled beans, which were ſucceeded by wheat. The firſt and laſt crops ſuffered much from the grub. Fallowed the field in the fourth year, cleaving in different breadths, and croſs-ploughing the ridges, alternately, till the ſurface was completely levelled; then formed the ground into eighteen-feet ridges, applied twelve double cart loads of dung, about one ton each, and fifty barley bolls of lime to the Scotiſh acre. The lime was laid on hot from the kiln, and ſpread as faſt as it was pulveriſed. I found this quantity rather too much for the ſofteſt part of the field, which, after all, is a circumſtance that rarely happens; but on the remainder, the fermentation was not greater than neceſſary; and, from this part of the field, the beſt crops have been procured, though the ridges

were both higher and broader, and required more levellings than the other.

I have thus communicated a few of the many trials made upon my farm with lime, the moſt of them being upon an extenſive ſcale, and have endeavoured to do it in ſuch a way, as that the ſeveral proceſſes may be comprehended by people of the moſt limited capacity. I ſhall now attempt to diſcharge the other promiſe I came under, viz. to furniſh you with ſome information reſpecting the uſe of lime mixed with rich earth, which I have uniformly found to anſwer well upon all ſoils, even when the naked article has proved abortive.

There are few farms but contain plenty of materials for making compoſt middens, ſuch as I allude to, though the great degree of trouble required, in general caſes, to bring them to perfection, deters the moſt of farmers from dealing largely in ſuch a manure. Old yards, deep head-lands or ridges, ſcourings of ditches, alluvial land, and ſuch as is floated occaſionally by burns or water-runs, all offer themſelves as the baſis of compound middens. If theſe are cleaned ſufficiently from weeds, (in ſome caſes, it is proper to ſummer-fallow before hand), and lime is mixed with the earth in a proportional extent to its ſtrength and richneſs, a manure of the beſt quality is readily provided.

The great object, in all ſuch attempts, ſhould be, to ſave labour; for, uſeful as this manure is, it may be bought too dear. This object deſerves conſideration in two reſpects: 1*ſt*, In making up the midden; 2*dly*, In the application of it to the ground. The firſt is attended to, when the whole labour is performed by the plough, which is practicable, when old yards, head-ridges, or alluvial ground is uſed. The ſecond is attended to, when the midden is ſituated contiguous to the field on which it is to be applied. If compoſt is drove to any diſtance, the expence of carriage is intolerable, and cuts deep into the future profits.

After the lime is laid on the ground propoſed to be uſed, which may be done at two different times, in order to inſure a better mixture, ſeveral ploughings and harrowings are neceſſary, in order to incorporate the whole effectually together. It is proper, after each ploughing, to ſhovel up the looſe earth from the outſides, which eſcapes the plough; and the moment a complete fermentation takes place, which is not a tedious proceſs, if the weather is warm and moiſt, it ought to be inſtantly carted to the field, and applied in quantities, according to the quality of the ſoil upon which it is to be adminiſtered. I have generally found from forty to fifty double cart loads a full doſe to ordinary ſoils, one ſeventh of which ought to be limeſhells; and this, in fact, is equal to one third of ſlacked lime, or rather more. A dreſſing of this kind, upon a mooriſh ſoil, is attended with greater advantages

vantages than can be gained from a dreſſing with ordinary farm-yard dung. Repeated trials have confirmed me in this opinion.

Compoſts made from ſcourings of ditches, are, of courſe, more expenſive; but it may be conſidered that theſe ſcourings, in many caſes, muſt be removed at all events, eſpecially when taken from ditches on the ſides of public roads; therefore the carriage thereof cannot, with propriety, be ſtated againſt the compoſt. They are ſeldom, however, ſo rich as a head-ridge of greaſy loam, and generally require more lime. Perhaps a ſmall quantity of dung is alſo neceſſary.

I ſhall now proceed with an account of two or three of theſe middens, which have been made and uſed upon my farm. Brevity ſhall be ſtudied as much as poſſible.

In one field, through which a ſmall burn paſſes, I ploughed the head-ridge, which was ſtrong ſoil, and far from being of good quality, and covered it with lime. The burn itſelf was then ſcoured out, and the ſcourings, together with a bank on the ſide of it, accumulated from former ſcourings, were laid upon the head-ridge. This raiſed it to a conſiderable height, and rendered a turning by the ſpade neceſſary when more lime was applied. All the remaining turnings were given with the plough; and, to the beſt of my recollection, the total quantity of lime uſed amounted to about twenty barley bolls for each acre of ground afterwards covered with compoſt.

When the field in which the midden was ſituated, the ſoil of which was of a mooriſh kind, came to be ſummer-fallowed, I drove out the compoſt, and covered betwixt eight and nine acres with it. The remainder was dunged; but the ſuperiority of the compoſt was evident, eſpecially after the firſt crop. The effects of the dung alſo ſooner ceaſed; and I obſerve, that where the compoſt was uſed, the ground is more pliant and eaſier wrought, than where it was omitted.

In a ſecond field, which had a broad, high head-ridge of greaſy loam, lime was applied in the month of June, and all the turnings were given by the plough. This midden was drove out in the end of Auguſt the ſame year, and laid upon land of ſimilar quality to the head-ridge. I mention this, becauſe many people think that ſoils ought to be croſſed; in other words, that compoſts, where clay is the baſis, ought to be adminiſtered to light ſoils, and *vice verſa*. However true this may be as a general principle, yet, in this caſe, it did not hold; for the operation was prompt, and produced me ſeveral valuable crops. The quantity of lime given to the compoſt uſed upon a Scotiſh acre, was preciſely twenty-eight bolls, being rather more than the half of what would have been required to give ſuch a ſoil a complete liming.

Some old yards on my farm presented a fine object for making composts; and, having a field of soft sandy loam adjoining, I determined to work them up. They were, therefore, in the beginning of Winter, ploughed with a deep furrow, and sufficiently harrowed. Lime was then applied, and turned in by the plough directly; in which state the ground remained till the Spring, when it was ploughed and harrowed again. In the month of April, it was carted out to the field, preparatory to barley being sown; and a succession of good crops was the consequence.

It would occupy more of your Miscellany, than probably can be conveniently devoted to one subject, were I to enumerate more of the successful experiments in this line: Suffice it to say, I have rarely found composts to fail, when made up in a judicious manner. Perhaps the expence is not less than *might* purchase dung for the like extent of ground so manured; but then it must be recollected, that, in numberless situations, dung cannot be purchased for money: Hence, to cultivators so situated, such an acquisition, as what I have been describing, is of singular importance. In process of time, a farm may thereby be vastly benefited; for one good crop always provides the means of gaining another. Indeed, attention to such matters constitutes, in a great measure, the difference betwixt a good farmer and a bad one.

I shall now attempt to draw a few plain and practical inferences from what is stated in this and my former letter.

1*st*, That lime operates equally well, whether applied in a *hot* or *effete* state, provided the condition of the ground, upon which it is used, be such as to render a calcareous application beneficial.

2*dly*, That, in respect of operation, it is immaterial whether lime be used upon grass land or summer-fallow, and that objects of conveniency ought chiefly to weigh with the farmer in ascertaining the most proper time for applying this article. Upon old grass land, it is perhaps best to plough first, and to summer-fallow in the second year, when lime can be applied. On new and clean grass land, hesitation is superfluous; it may be limed at the outset, that is, before the plough is admitted.

3*dly*, That to lime moorish soils, is a hazardous business, unless dung is likewise bestowed; but to repeat the dose upon such soils, especially if they have been severely cropped, is almost a certain loss, and that a compost of lime and rich earth is the only succedaneum in such cases.

4*thly*, That strong loams and clays require a full dose to bring them into action; such soils being capable of absorbing a great quantity of calcareous matter. Lighter soils, however, require less lime to stimulate them, and may be injured by administering a quantity that would prove moderately beneficial to those of a heavy nature.

5*thly*,

5*thly*, That upon fresh land, or land in a proper state for a calcareous application, lime is much superior to dung. Its effects continue for a longer period, the crops produced are of a superior kind, and less susceptible of injury from the excesses of drought and moisture. Finally, the ground, particularly what is of a strong nature, is much easier wrought; and, in many instances, the saving of labour would almost tempt a judicious farmer to lime his land, were no greater benefit derived from the application, than the opportunity thereby gained of working it in a perfect manner.

Upon a future occasion, I will likely trouble you with my sentiments on the management of dung, a subject imperfectly understood by many people, though of great importance to every practical farmer. I am, &c.

ARATOR.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

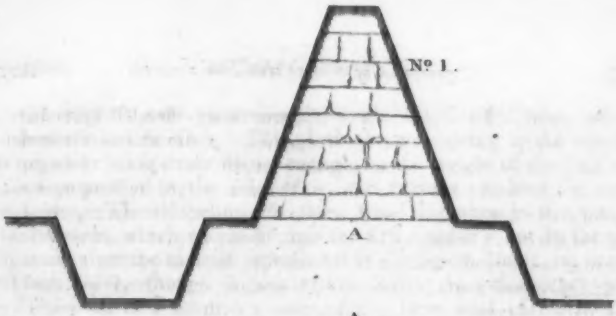
Description of a successful Embankment on Lord Galloway's Estate.

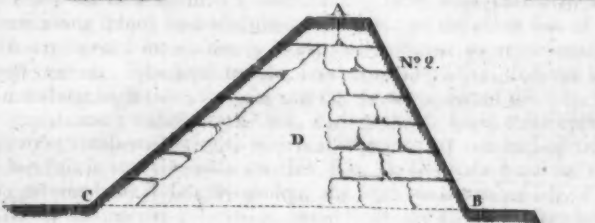
GENTLEMEN,

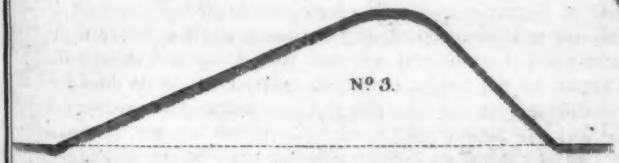
As you seem anxious to be informed, concerning any improvement in agriculture that is taking place, I flatter myself that the following account of a successful embankment of a part of this farm, lying in the mouth of the River Cree, opposite Creetown, which belongs to Lord Galloway, and is at present possessed by me, will not be altogether unacceptable to you.

I entered to the farm about four years ago, on a lease of 21 years, and my life; at which time upwards of 100 Scotish statute acres were regularly flooded by the highest spring-tides, excepting about three months in Summer, when the tides were lower. They were seldom, however, covered above the deepness of one or two feet, and never above four or five. Eighty acres of the above consisted of a rich sea marsh, or *inks*, as we call them here, almost a true level, excepting where hollows were formed by the egress and regress of the tides, and the passage of fresh water from the higher grounds; and about 4 or 5 acres, which were about 16 inches lower, being a younger marsh, and nothing but what we call ink grass growing upon it, (as I am no botanist, I can give it no other name); other grasses, such as clover, rib-grass, &c. grew on the rest of the marsh, forming a very beautiful close cover in the Summer. The other 20 acres were at an average about 18 inches higher; consequently, the sea did not cover it so often. It had formerly been ploughed, but not for about twenty

years paſt. Laſt time it was in corn, it was flooded immediately after being ſown, which rendered the crop almoſt entirely uſeleſs, and deterred former tenants from ploughing it again. I began to bank this field in the Autumn of the year 1798, by making a dike along the ſide oppoſite to the river, in a direct line facing the eaſt. This dike was made, at an average, about 3½ feet high, and 6 feet broad at bottom, and 20 inches at top, built after the ſame manner of the one at Netherton of Grange, mentioned in your February Magazine. I incloſed, along with ſaid field, 4 acres of the marſh adjoining, by making a dike 5 feet high, and 5 feet in bottom, almoſt wholly of ſolid ſeal or ſods, with a very little ſtuff, properly beat, in the heart of it, which makes an excellent fence, and promiſes to be a very durable one. This dike, together with two ſmall drains, one on each ſide of it, about 2 feet deep, coſt 3d. per yard. I have been more particular in mentioning this dike here, as the diviſion dikes of the whole marſh, which is now divided into four parts, are all built after the ſame manner, only that there is no looſe ſtuff in the heart of ſome of them, but all of ſolid ſeal, jointed like brick, as may be ſeen in the annexed figure A, No. 1, repreſenting an end view, or ſection of it. This dike, meant as a permanent fence, anſwered as a temporary bank, and enabled me to plough that field in Spring 1799, although the bank round the whole marſh was not finiſhed till the Winter following. Sowed oats on this field, and, conſidering the badneſs of the ſeaſon, had a very good crop; particularly ſo, on that part which had not been ploughed formerly. On further conſideration, I altered the plan of the bank round the marſh, (which extends in a circular direction facing the north), by making it, at an average, about 4½ feet high, and allowing about two feet in the baſe for one in height: See fig. No. 2, where A B C repreſents an end view, or ſection of it, every ſmall ſpan repreſenting the ſection of a ſeal or ſod; A B ſhews the inſide of the bank, with the green ſide of the ſeal down; B C the baſe; A C the ſide next the water, with the green ſide of the ſeal out, (which adds greatly both to the ſtrength and beauty of the bank); and D the heart of the dike, made up with ſtuff properly compreſſed with a rammer. The ſtuff was taken from a ditch in the inſide of the bank, leaving a caſement of a foot, which ought to have been three at leaſt; and, where the ground is of a ſandy nature, more; as the freſh water, running in the inſide, was likely to undermine the bank, had I not prevented it, by cutting a new drain, and filling the old one with the ſtuff caſt from it. The only creek worth noticing, through which the bank paſſed, was one about 40 feet wide, and 9 feet deep; in the bottom of which, a wooden pipe, with a ſtopper, was laid through the bank. No tide offered the ſmalleſt injury to the bank, till January laſt, when we had one of the







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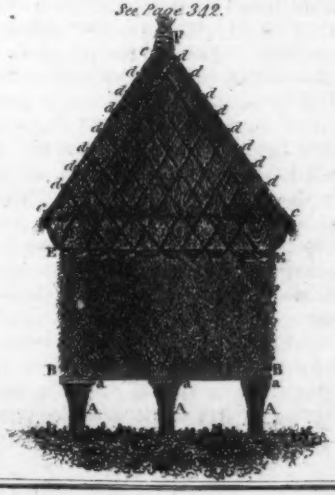

the higheſt ever remembered by the oldeſt inhabitant, which broke it at this creek. This, I think, was owing to the wooden pipe not being made ſtrong enough, as the weight of the ſtuff and water preſſed in the ſides of it, and thereby admitted the water below. The tide made alſo three ſmall breaches in that part of the bank, which was built after the firſt manner; but in the part made after the manner repreſented in the figure, No. 2, no breach took place, though it was rather lower than the other part. There are now about 50 acres of the ſame kind of marſh land adjoining mine; and alſo about 100 acres on the other ſide of the river, banked in, all nearly in the ſame manner as repreſented in the figure. The bank on the farm adjoining mine, ſuffered little from the high tide; but the one on the other ſide of the river was made almoſt a complete wreck, owing to its lying quite oppoſite to the ſouth-weſt winds, which always ſend up our higheſt tides; but this is not the caſe on this ſide, theſe winds blowing right over our bank. In my opinion, the bank on the other ſide of the river, in order to be durable, would require to be 30 feet broad, and 8 feet high, covered with feals, with the green ſide out; and that no ſtuff ſhould be lifted within 6 or 7 feet of it, the ground being of a ſandy nature. It might be made after this form: See figure, No. 3. I hear that the proprietor is going to make this bank anew, on the tenant's paying intereſt for the money laid out; ſo, we may expect to ſee it done in the moſt complete ſtyle. I have now got the breaches in my bank made up, and am begun to give the whole a complete repair, by adding, at an average, 15 inches to its height, and 2 feet of baſe for each foot in height. The whole bank is about 1500 yards in length, and, when the repairs are completed, will altogether coſt me betwixt 80 or 90l.

In the year 1800, I ploughed another field of about 26 acres of this marſh, beſides the one formerly mentioned, on which I had an excellent crop of oats, thought by many to be the beſt they had ever ſeen. Laſt year, I had the ſame field, part in oats, and part in wheat: the wheat was a very good crop; and the oats, which were of the Poliſh kind, far exceeded the crop of the former year. Laſt Summer, I levelled the old ridges of the firſt mentioned field, all by the ſpade; gave it a complete ſummer-fallow; ſhelled and dunged it well; have part ſown with wheat, part with potato-oats, and all with graſs ſeeds. The other field is ſown, part with wheat, and part with beans drilled; and, what is very ſurpriſing, although the wheat was covered ſeveral times by the ſalt water, when the bank was broke, ſome of it to the depth of 3 feet, yet it is all looking well. The whole marſh is, this year, under the plough. It may be worthy of obſervation, that the 4 or 5 acres, which I mentioned as being a younger marſh, harrowed

harrowed eaſier than the reſt, and produced as good, if not better, crops.

If theſe remarks appear worthy of a place in your Magazine, they are at your ſervice. I am, Gentlemen, your conſtant reader, and humble ſervant, THOMAS HANNAY.

Grange of Cree, 18th April 1802.

FOR THE FARMER'S MAGAZINE.

Hints on the Improvement of Waſte Lands, addreſſed to Lord Carrington, Preſident of the Board of Agriculture.

MY LORD,

To behold the barren heath converted into ſweet paſture, and the ruſhy fen become a fertile field, to every lover of rural ſcience, are objects far exceeding the fineſt paintings of Italy, or the moſt elegant finiſhed Grecian ſtatue. And, to every friend to the improvements of the Agriculture of Great Britain, it muſt afford peculiar ſatisfaction, to ſee the rapid progreſs this moſt uſeful of all arts has made amongſt us of late years.

How far thoſe happy effects on the improvements of the agriculture of Great Britain may be attributed to the indefatigable exertions of the Board of Agriculture, is obvious to the moſt ſuperficial obſerver. Since the eſtabliſhment of this inſtitution, a paſſion for agricultural improvements has continued to pervade all ranks. From his Majeſty on the Throne to the meaneſt cottager, all wiſh for a bit of land to cultivate: Hence, this univerſal ſpirit of improvement: Hence, the rapid advance in the value of land: Hence, the exalted pitch of perfection, to which the agriculture of Great Britain has now arrived.

Every art has its dawn—its bright day—its meridian. If, then, while we have been at war, I had almoſt ſaid, with *all the world*, our agriculture has been able to keep up its bright day, to what meridian ſplendour may we not reaſonably expect it will arrive, now, when we are about to convert our ſpears into pruning hooks, and our ſwords into plough-ſhares?

Happy Prince! whoſe ambition leads not to raiſe vaſt armies, to ſhed rivers of human blood, and to lay waſte and deſtroy neighbouring ſtates; but to preſerve and encourage millions of uſeful ſubjects—cultivating the arts of peace! In all human probability, *our* great armies are on the eve of being diſcharged: And, were it poſſible to direct their future labours to the cultivation of the waſte lands in theſe kingdoms, what immenſe wealth would

flow

flow from this inexhauſtible ſource! Here would be a victory, indeed, far ſurpaſſing the conqueſt of Aſia itſelf!

To incloſe and to drain—to clear the land of weeds—to give it the proper quantity of manure, neceſſary labour and juſt proportion of good ſeed—to attend on the ſeaſons for ploughing, ſowing, reaping and ingathering, and a regular rotation in cropping, is the ſum of all that is, or that ever will be known, of good huſbandry. For all of which, my Lord, very good general rules and directions may be laid down; but, to put in practice, we often find it more difficult than at firſt we were aware of. No, my Lord, to become a ſkilful huſbandman, requires both a diſcerning eye, and much practice: This attained, capital and enterprize will remove mountains, and fill up valleys. What aſtoniſhing improvements of late years, my Lord, have come under the courſe of your own obſervation! And yet much remains to be done. Caſt your eyes around, and how many millions of acres do you behold, lying in abſolute ſterility, but which, by cultivation and proper management, might be made valuable property!

We obſerve, my Lord, petitions coming into Parliament from various quarters, ſtill complaining of the *high* price of proviſions; and various means offered to redreſs this national grievance. Such as, an account of our ſtock of grain on hand—our ſowing—probable increaſe, &c.—So far good. But, my Lord, I am humbly of opinion, in which, I flatter myſelf, many thouſands of his Majeſty's faithful and loving ſubjects will heartily concur, that if thoſe waſte lands, above alluded to, were brought into a ſtate of cultivation, every *real* grievance of this nature would be redreſſed. Becauſe the vaſt increaſe, *additional* increaſe, thence ariſing, as well as the maintenance of a proportional number of ſtock, *additional* ſtock, would then be fully adequate to the national conſumption, even in the moſt unpropitious ſeaſons.

Believe me, my Lord, every common neceſſary of life, of foreign importation, is a national grievance; and, until effectual means be fallen upon to prevent the *neceſſity* of foreign importation, our manufactures, our commerce, our agriculture, cannot arrive at that degree of perfection, at that meridian ſplendour, every true patriot anxiouſly wiſhes to behold.

Firmly perſuaded, that the attainment of a conſtant and regular ſupply of the common neceſſaries of life to the people, without the application of foreign aid, is a national object of the firſt magnitude, and worthy of the ſerious conſideration of the Preſident of the Board of Agriculture, I have ventured to preſent theſe looſe hints to your Lordſhip; not doubting but the leaſt mite of information, when well meant, will be received with every degree of attention; eſpecially, my Lord, when gratitude

titude is the leading motive of its author*. But, before I proceed farther, it may not be improper to deſcribe thoſe waſte lands we reckon improveable, as well as thoſe generally reckoned unimproveable.

First Class.

Improveable Waſte Lands.

Firſt, All fens and lakes, ſituated ſo far above the level of the ſea or adjacent rivers, as to admit of being drained.

Secondly, All ſtrong clays, covered with a ſtratum of moſs, which, in many ſituations, may be floated off to the ſea.

Thirdly, All deep level moſs, of late found capable of high improvement †.

Fourthly, All thin ſurface of moſs, of clay bottom, on uplands, capable of being improved by paring and burning culture.

Fifthly, All black, heath, light ſoil, of gravel or till bottom.

Sixthly, All rocky heaths, which, though not adapted to tillage, might be much improved, by ſpreading lime, ſhells, or marl, on the ſurface, for paſturage.

Laſtly, All thoſe lands, capable of being reclaimed from the ſea by embankment.

Second Class.

Unimproveable Waſte Lands.

All fens, lakes and moraſſes, ſituated ſo much on a level with the ſea or adjacent rivers, as to render them incapable of being drained. All deep moſs in elevated ſituations, and of uneven ſurface—all downs—bleak mountains, and rocky hills, wherever ſituated.

Now, my Lord, from the different county reports, I apprehend the Board of Agriculture are perfectly ſatisfied that the extent of thoſe waſte lands, arranged in the firſt claſs, are ſuch, if brought under proper cultivation, as would prevent the *neceſſity* of foreign importation. To bring this about, will require time and much labour. Granted. But it is equally true, 'That wine 'maketh a man merry—But money anſwereth all things.'

On a former occaſion, I gave your Lordſhip ſome hints on this important ſubject; but thoſe being chiefly deſigned to point out the propriety of improvements, in general, on waſte lands, with a ſcheme of management, ſhewing ſuch to be adapted to the mutual advantage of both landlord and tenant—and being ſomewhat

* Alluding to a ſilver medal voted by the Board of Agriculture to the author on a former occaſion.

† Such is Trafford Moſs near Mancheſter, and Swindrick Muir in Ayrſhire.

what doubtful of theſe, however much intereſted, making any great progreſs, without Parliamentary aid, made me ſuggeſt theſe additional crude hints to your Lordſhip.

The ſcheme I would at preſent beg leave to ſubmit to the conſideration of the Board of Agriculture, is quite ſimple.—Suppoſing you to ſucceed in your application to the Houſe of Commons for a diviſion of the waſte lands, and that an annual grant was made by Parliament for promoting their improvement; this grant, judiciouſly diſtributed in premiums and honorary rewards throughout the ſeveral diſtricts of Great Britain and Ireland, for a few years, for the expreſs purpoſe of promoting the cultivation of the waſte lands in theſe kingdoms, would produce an aſtoniſhing effect—inſomuch, my Lord, that a ſpirit of emulation and enterprize, almoſt univerſal, would thereby be diffuſed throughout the agricultural world, unknown at any other period.

The manner of fixing, and mode of diſtributing, thoſe premiums and honorary rewards, to be under the ſole direction of the Board of Agriculture.

I am well aware, my Lord, that, to ſuperficial obſervers, ſuch a meaſure will ſeem extravagant; but to thoſe who have penetration ſufficient to *dive* into the great national benefits thence to ariſe, it will only appear as a *ſum of money well ſecured*, which, in a ſhort while, will be rendered back to Government *ſeven-fold*; ſeeing the only permanent *ſource* of taxation is in land.

It would be arrogant in me, to pretend to lay down rules for the diſtribution of thoſe honorary rewards and premiums. From the *maſs* of information your Lordſhip is in poſſeſſion of, the Board of Agriculture *alone* are competent to the important taſk.

It may not, however, be amiſs to ſuppoſe what number of acres of waſte lands it is probable may be brought into cultivation annually. Let us ſuppoſe 500,000 acres. This, upon an average, will yield ſupport to the like number of ſouls, over and above what is required for ſeed and feeding the working ſtock; and, continued for the ſpace of ſeven years, would add to the general national ſtock of proviſions, ſupport for *three* millions and a half of people!

The ſubject, my Lord, is of greater importance than any that can occupy the attention of the Board at which you reſpectably preſide; and I ſanguinely hope, it will be taken up at an early period, in that deciſive way which is neceſſary to inſure ſucceſs to a meaſure, which has for its object, the proſperity of agriculture, and the comfort and happineſs of the inhabitants of this country. I have the honour to be, my Lord, &c.

ARISTIDES.

To

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

GENTLEMEN,

PRESUMING that the directions for making compoſt dunghills of peat-turf, in a judicious manner, as aſcertained in a pamphlet lately written by Lord Meadowbank, will be of utility to many of your readers, I have ſent you a tranſcript of a part of that pamphlet. I have only to add, that I have ſeen a compoſt dunghill, made according to his Lordſhip's directions, which completely anſwered the purpoſe, by fermenting the peat-turf, and thereby reducing it into a ſituation proper to be applied as manure; which appears to me to be a far preferable method to that of reducing the peat-turf (or moſs, as it is called in Scotland) to aſhes. I am, &c. A. S.

Directions for making Compoſt Dunghills of Peat-Moſs, by Lord Meadowbank.

Let the peat-moſs, of which compoſt is to be formed, be thrown out of the pit for ſome weeks or months, in order to loſe its redundant moiſture. By this means, it is rendered the lighter to carry, and leſs compact and weighty, when made up with freſh dung for fermentation; and, accordingly, leſs dung is required for the purpoſe, than if the preparation is made with peat taken recently from the pit. The peat taken from near the ſurface, or at a conſiderable depth, anſwers equally well.

Take the peat-moſs to a dry ſpot, convenient for conſtructing a dunghill to ſerve the field to be manured. Lay the cart-loads of it in two rows, and of the dung, in a row betwixt them. The dung thus lies nearly on an area of the future compoſt dunghill, and the rows of peat ſhould be near enough each other, that workmen, in making up the compoſt, may be able to throw them together by the ſpade. In making up, let the workmen begin at one end; and at the extremity of the row of dung, (which ſhould not extend quite ſo far at that end as the rows of peats on each ſide of it do), let them lay a bottom of peat, ſix inches deep and fifteen feet wide, if the grounds admit of it; then throw forward, and lay on, about ten inches of dung above the bottom of peat; then add from the ſide-rows about ſix inches of peat; then four or five of dung, and then ſix more of peat; then another thin layer of dung; and then cover

cover it over with peat at the end where it was begun, at the two ſides, and above. The compoſt ſhould not be raiſed above foor feet, or four feet and a half high; otherwiſe, it is apt to preſs too heavily on the under parts, and check the fermentation. When a beginning is thus made, the workmen will proceed working backwards, and adding to the column of compoſt, as they are furniſhed with the three rows of materials directed to be laid down for them. They muſt take care not to tread on the compoſt, or render it too compact; and, of conſequence, in proportion as the peat is wet, it ſhould be made up in lumps, and not much broken.

In mild weather, ſeven cart-load of common farm-dung, tolerably freſh made, is ſufficient for twenty-one cart-loads of peat moſs; but in cold weather, a larger proportion of dung is deſirable. To every twenty-eight carts of the compoſt, when made up, it is of uſe to throw on, above it, a cart load of aſhes, either made from coal, peat, or wood; or, if theſe cannot be had, half the quantity of ſlacked lime may be uſed; the more finely powdered the better. But theſe additions are nowiſe eſſential to the general ſucceſs of the compoſt.

The dung to be uſed ſhould either have been recently made, or kept freſh by compreſſion; as, by the treading of cattle or ſwine, or by carts paſſing over it. And if there is little or no litter in it, a ſmaller quantity will ſerve, provided any ſpungy vegetable matter is added at making up the compoſt, as freſh weeds, the rubbiſh of a ſtack-yard, potato-ſhaws, ſawings of timber, &c. And as ſome ſorts of dung, even when freſh, are much more advanced in decompoſition than others, it is material to attend to this; for a much leſs proportion of ſuch dung as is leſs advanced, will ſerve for the compoſt, provided care is taken to keep the maſs ſufficiently open, either by a mixture of the above mentioned ſubſtances, or, if theſe are wanting, by adding the peat piece-meal; that is, firſt making it up in the uſual proportion of three to one of dung; and then, after a time, adding an equal quantity, more or leſs, of moſs. The dung of this character, of greateſt quantity, is ſhamble dung, with which, under the above precautions, ſix times the quantity of peat, or more, may be prepared. The ſame holds as to pigeon dung, and other fowl dung; and, to a certain extent alſo, as to that which is collected from towns, and made by animals that feed on grains, refuſe of diſtilleries, &c.

The compoſt, after it is made up, gets into a general heat, ſooner or later, according to the weather, and the condition of the dung: In Summer, in ten days or ſooner; in Winter, not perhaps for many weeks, if the cold is ſevere. It always, how-

ever,

ever, has been found to come on at laſt *; and, in Summer, it ſometimes riſes ſo high as to be miſchievous, by conſuming the materials, (fire-fanging). In that ſeaſon, a ſtick ſhould be kept in it in different parts, to pull out and feel now and then; for, if it approaches to blood-heat, it ſhould either be watered, or turned over; and, on ſuch an occaſion, advantage may be taken to mix it with a little freſh moſs†. The heat ſubſides, after a time, and with great variety, according to the weather, the dung, and the perfection of the making up of the compoſt; which then ſhould be allowed to remain untouched, till within three weeks of uſing, when it ſhould be turned over, upſide down, and outſide in, and all lumps broken: Then it comes into a ſecond heat; but ſoon cools, and ſhould be taken out for uſe. In this ſtate, the whole, except bits of the old decayed wood, appears a black free maſs, and ſpreads like garden mould. Uſe it, weight for weight, as farm-yard dung; and it will be found, in a courſe of cropping, fully to ſtand the compariſon.

Let it be obſerved, that the object in making up the compoſt, is to form as large a hot-bed as the quantity of dung employed admits of, and then to ſurround it on all ſides, ſo as to have the whole benefit of the heat and effluvia. Peat, nearly as dry as garden-mould in ſeed-time, may be mixed with the dung, ſo as to double the volume and more of it. Workmen muſt begin with uſing layers; but, when accuſtomed to the juſt proportions, if they are furniſhed with peat moderately dry, and dung not loſt in litter, they throw it up together as a mixed maſs; and they improve in the art, ſo as to make a leſs proportion of dung ſerve for the preparation.

The addition, recommended, of aſhes or lime to the compoſt, is thought to favour the general perfection of the preparation, and to haſten the ſecond heat. The lime laid on above the dung-hill, as directed, is rendered mild by the vapours that eſcape during the firſt heat.

Compoſt, made up before January, has hitherto been in good order for the Spring crops; but this may not happen in a long froſt. In Summer, it is ready in eight or ten weeks; and if there is an anxiety to have it ſoon prepared, the addition of aſhes

* In order to bring on the heat more expeditiouſly in a compoſt made up in froſt, a narrow addition of dung and peat has, ſometimes, after the froſt had gone off, been laid along the ſides of the compoſt, ſcraping down a little the coating of peat upon it.

† In June 1796, a compoſt was formed, only 2½ peat of 1 dung: It heated in July beyond the meaſure of a thermometer graduated to 110°. Part was allowed to ſtand, part turned with a half more moſs. Three weeks after, (18th Auguſt), the heat of the former had deſcended to 84°, while that of the latter had got up again to above 110°.

aſhes, or of a little lime rubbiſh of old buildings, or of lime ſlacked with foul water, applied to the dung uſed in making up, will quicken the proceſs conſiderably.

Lime has been mixed previouſly with the peat; but the compoſt prepared with that mixture, or with the ſimple peat, ſeemed to produce equally good crops. All the land, however, that it has been tried on, has been limed more or leſs within theſe twenty-five years.

The rich coarſe earth, which is frequently found on the ſurface of peat, is too heavy to be admitted into this compoſt; but it makes an excellent top-dreſſing, if previouſly mixed and turned over with lime.

Peat, prepared with lime alone, has not been found to anſwer as a good manure. In one inſtance, viz. on a bit of fallow, ſown with wheat, it was manifeſtly pernicious.

LETTER X.

FOR THE FARMER'S MAGAZINE.

Strictures on Farm-Management near London.

(Continued from p. 75.)

WHILE at your eſtate, I inquired into the method of reaping and ſecuring your grain, eſpecially wheat, and found them both extremely faulty. Reaping your wheat ſo very high, leaving the ſtubble, as I was informed, almoſt as high as the knee, is unqueſtionably attended with a prodigious loſs of grain; I ſhould ſuppoſe not leſs than from two to three buſhels an acre. The experiment was fairly made, comparatively, by an experienced farmer of my acquaintance. Two pieces of ground in the ſame field were cut down by the ſame gang of reapers, accurately timed by a watch, and the ground carefully meaſured. The produce of the two patches were ſeparately thraſhed and meaſured; even the value of the ſtraw in both were computed. Allowing in every reſpect, both of wages and victuals, for the difference of expence, by the acre, in the two ways, the advantage was very conſiderable in favour of low cutting; beſides the great additional quantity of fodder and manure produced by the latter.

Indeed, on even a very ſlight conſideration of the ſubject, it muſt be evident, that a conſiderable number of the ears of

wheat are always, in harveſt time, bent down almoſt to the ground, which muſt neceſſarily be left uncut in high reaping. Theſe are not, indeed, altogether loſt to the community; ſince they are gleaned up, in a great meaſure, by the poor of the pariſh. They are, however, in a very great degree, loſt to the occupier and the proprietor of the ground; and may, in ſome meaſure, even be conſidered as a public loſs: For I am very well convinced, that numbers prefer the indolent occupation of gleaning, who are neither too old nor too young for the more laborious and more uſeful taſk of reaping. Not to mention, that gleaning leads almoſt neceſſarily into ſtrong temptations of pilfering from the ſheaves; and conſequently is one help, among infinite numbers, towards corrupting the morals of the lower claſs of the community. I find, the attention requiſite to keep the gleaners within ſome tolerable bounds, prevents the poſſibility of giving that marked ſuperintendance, which is indiſpenſably neceſſary for keeping the reapers in exact and proper order.

Your plan, likewiſe, of ſecuring your grain in barns, I muſt conſider as attended with a vaſt deal of unneceſſary expence. The barns requiſite for containing the corn produce of a large farm, or, which is ultimately the ſame thing, of a number of ſmall farms, coſt an immenſe deal of money; which, in my opinion, is altogether thrown away, as the grain can be more commodiouſly, and, at leaſt, with equal ſafety, preſerved in ricks properly conſtructed. This vaſtly unneceſſary waſte of buildings, could be much more advantageouſly employed to other, and more profitable purpoſes, in the farm-ſtead.

Beſides, the corn and its ſtraw muſt neceſſarily be a great deal more dried in the field, to render it proper for being ſecured in barns, than when it is to be built in ricks; as theſe latter, being expoſed to the free air all round, are by no means ſo apt to heat or mould the grain and ſtraw, as if it were ſtored in barns. In conſequence of that ſuperior degree of dryneſs neceſſary for barn-harveſting, the grain is certainly a great deal more apt to ſhake out from the ear, in handling and forking into the carts or waggons, for being led home. When built in ricks, properly contrived, the grain is likewiſe placed altogether out of the reach of rats and mice, which commit very great waſte in barns, however well conſtructed.

I would therefore propoſe, that all your grain ſhould be built in round ricks in the yard, upon wooden frames, open below, raiſed on ſtone ſupports, ſimilar to thoſe on which your granary is fixed. By this plan, it would be moſt effectually ſecured againſt the depredations of vermin; and, beſides, the air having free

free acceſs all around, and even underneath, through the interſtices of the frame, it would be completely prevented from all danger of ſpoiling in any way in the rick.

In this way of ſecuring grain, the ricks do not by any means require to be thatched ſo very ſubſtantially, and, of conſequence, expenſively, as is practiſed with you; where, I underſtand, ricks, that are only to ſtand rather under a year, are thatched with almoſt as much care as cottages, that are intended to laſt for many years. Your foreman informed me, that it would occupy a man, who doubtleſs muſt have aſſiſtants to ſupply him with materials, above a day to thatch one moderate rick. With us, one thatcher, and two aſſiſtants, will thatch at leaſt ſix large ricks in one day; and ſecure them ſo effectually, as to preſerve the grain and ſtraw from every baneful influence of weather, for a complete ſeaſon.

In building a corn rick, effectual care muſt be taken, to keep the centre or heart of the rick always conſiderably higher than the outer range of ſheaves; ſo that every ſheaf in the rick has a conſiderable ſlope outwards and downwards. When this is properly attended to, and all the ſheaves carefully locked together, and the crown properly put on, the rick will even turn a very heavy ſhower, before the thatch is applied. The whole rick, after the thatch is laid on, is finally covered over with a network of ſtraw ropes, leaving the meſhes about nine or twelve inches wide; all the ends of the ropes being ſecured to a belt rope, which goes round the rick below the eaves, juſt within reach of a man; and the middles of all the ropes are tied to one that goes ſtraight over the top of the rick, by ſmall handfuls of ſtraw. I have endeavoured to ſhew the diſpoſition of the whole, in a ſketch. (See Plate, p. 332.) A A A are the ſtone ſupports, with their flat caps a a a. B B is the wooden frame. C C C the ſtraight rope, to which all the others are attached at d d d, &c. and their ends firmly ſecured, by paſſing ſeveral times round the belt rope E E. F is the crown or ſummit of the rick, firmly fixed over the ſtraight rope C, and is ſometimes fancifully decorated. All the oblique ropes, d d d, are put on alternately from the oppoſite ſides of the rick. Some farmers prefer fixing the ends of the oblique ropes to the buts of the ſheaves, without uſing a belt rope.

The plan of houſing hay, as practiſed in your country, is likewiſe, in my opinion, equally abſurd and expenſive. Like grain, hay requires to be made exceſſively dry, to admit of being houſed with ſafety. In it, likewiſe, there are ſeeds, which may very properly be ſaved for after uſe; but which are very apt to be ſhaken out, and conſequently loſt, when over dried: And if

houſed with too much moiſture, the hay is extremely apt to acquire a muſty flavour, that can neither be agreeable nor wholeſome to horſes, cattle, or ſheep; beſides the danger of heating, and even of taking fire, which muſt be much greater in a houſe, than when built properly in a rick.

In this country, all our hay is built in ricks or ſtacks. The former reſembling the corn ricks, but generally larger; the latter reſembling a barn, or long cottage, with a pavilion roof; and both are thatched, on ſimilar principles to thoſe explained with regard to corn ricks. As a proof that hay ricks anſwer the purpoſe as effectually as barns, I need only to refer you to the hay yards of the great cow-keepers around London; where, ſometimes, one or more great barns full of hay ſtand, as a ſtriking contraſt, beſide eight or ten vaſt hay ſtacks: A ſingular proof of the power of habit and prejudice, over experience and common ſenſe.

In caſe of raw weather during hay or corn harveſt, it is common, in this country, to form a funnel or chimney up the centre both of hay and corn ricks; which are then invariably built circular, and conſiderably ſmaller than in good ſeaſons. This funnel is very eaſily conſtructed.—A round ſheaf of ſtraw, firmly bound up, is placed in the centre of the rick, at the foundation, and regularly drawn up, as the rick is built around it. Sometimes, in very bad ſeaſons, and particularly for barley ricks, three or four poles, wound about with ſtraw ropes, are ſet up in the centre, and the rick built round the hollow which they form. When there is no open frame below the rick, it is neceſſary to leave an opening below, (ſometimes two or three are left), to admit the free circulation of air. Theſe openings have a ſingular denomination in Scotland, and the North of England. They are called *fawſe*, in Engliſh, *falſe*, houſes; probably from young women being frequently inveigled into theſe ſecret receſſes, under *falſe* promiſes.

I have obſerved an excellent practice near London, when building large hay ſtacks. At night, and in time of rain, a large ſail-cloth is ſtretched over the unfiniſhed ſtack, in the form of a vaſt tent. This effectually guards againſt bad weather, and does not prevent the ſteam of the hay from making its eſcape.

As a ſubſtitute for a hay barn, in a grazing farm, which does not ſupply ſtraw for thatching the hay ſtack, I would recommend a moveable roof, erected on four ſtrong upright poſts of wood, or what is called a Dutch barn. This roof can be raiſed or lowered, either by a dumb-ſcrew, or by levers, ſo as to accommodate itſelf to the quantity of hay, either in proportion to the

the crop, or as it is expended. This roof is both cheaper than a barn, and admits the air more freely; and, if the hay happens to be put up too moiſt, and threatens to heat too much, it is much eaſier and leſs expenſive to empty than a cloſe barn. I am, &c. *R r r.*

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

On making Compoſt Dunghills. *

GENTLEMEN,

HAVING never as yet ſeen, in your uſeful publication, any account of the way in which a compoſt dunghill ſhould be made up, or the materials, &c. which it ſhould be compoſed of, I will thank you, or any of your correſpondents, to favour me with the neceſſary information on the ſubject. The gentleman who favours me with his ſentiments, will, I doubt not, explain the beſt time of the year for making the dunghill; the propereſt way of laying down, and mixing the materials; the proportions to be uſed; and not only embrace thoſe caſes where plenty of dung can be got, but alſo thoſe ſituations where only lime and moſs are at hand. The part of the country which I am connected with, has few, if indeed any, good farmers; I therefore truſt you will not refuſe to give me your ideas in a matter, which muſt be known before any improvements are attempted.

I am yours, &c.

Edinburgh, Feb. 15. B. Q. R.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

On the Probable Cauſe of the Curl in Potatoes.

GENTLEMEN,

AGREEABLE to the example, and in compliance with the ſolicitation of your ingenious correſpondent A. S. (No. X. p. 214.) I ſend you the following theory of this diſeaſe.

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* *Note by the Conductor.*

We refer our correſpondent to the communications of ARATOR and A. S. in this Number. Any time of the year is equally proper for making compoſt dunghills, though, if they are turned with the plough, dry weather ſhould be ſtudied when that operation is to be performed. N.

In entering upon the ſubject, it may be neceſſary to obſerve, that, though various plants are endowed with a power of adapting their natures ſo far to a change of climate, as to become quite naturalized to a country much colder than that wherein they were indigenous; yet the change, in ſome caſes, takes place by ſuch ſlow degrees, that a great number of years are requiſite to complete this proceſs of aſſimilation. The criterion of complete naturalization in plants, which renew their ſtalks every year, being the production of ſtalk and ſeeds in full maturity, this they will attain to in the dry and warm ſituations of the country into which they have been introduced, ſooner than in the cold hilly regions.

Theſe particulars appear fully exemplified in the potato plant, which was introduced from a climate much warmer than ours, ſo early as the reign of Queen Elizabeth; yet, from any information I have been able to collect, was not known to produce its ſtalk and ſeeds in full maturity, till within theſe forty years, and that only in the dryeſt and warmeſt ſituations of this country. In the cold mountainous part of the iſland, it has not yet attained this degree of perfection, the ſtalks or haulm always continuing in a green ſtate till the end of the ſeaſon; while the Surinam potato, (with ſome other kinds) more recently introduced to the climate, has not yet brought its ſtalk and ſeeds to full maturity, even in the moſt favourable ſituations.

Now, as the curled diſeaſe did not make its appearance in this country till within theſe forty years *, and that only in thoſe warm diſtricts where, as might be expected, the potato plant firſt brought its ſeeds to maturity; and as it has always been moſt prevalent, when, from the dryneſs and warmth of the preceding Summer, the ſtalk and ſeeds had been moſt fully matured †, while, on the contrary, it has *in no caſe* ever ſeized the Surinam ſpecies, which does not perfect its ſeeds, and is ſtill *unknown* in thoſe hilly late ſituations, where the ſeeds of the common kind do not ripen to perfection; I have been led to ſuppoſe, that it may originate from the ſeminal juices being transferred from the root to the bell or apple, in bringing the ſeeds to complete maturity; by a repetition of which, for a year or two, the roots may be reduced to ſuch a ſtate of debility, as to render them inadequate to the

* See Tranſactions of the Society for Encouragement of Arts, &c. vol. viii. p. 43, where we are told, that the curl firſt made its appearance in the year 1764, in the very diſtrict of Lancaſhire, where potatoes had been firſt cultivated, on their introduction from Ireland. See alſo vol. ix. p. 57.

† See General View of Agriculture in the north riding of Yorkſhire, drawn up for the conſideration of the Board of Agriculture. See alſo Ditto of Eaſt Lothian, by Baron Hepburn.

the propagation of healthy plants. This theory ſeems, in ſome degree, to be ſupported by analogy; for

"Liberal, not laviſh, is kind Nature's hand." BEATTIE.

We find that, in many other plants, the root becomes diveſted of its power to continue the ſucceſſion, as ſoon as ſeeds have been produced in a perfectly mature ſtate. Common red clover (*trefolium pratenſe*) for example, will ſpring again and again from the root, while it is not allowed to ripen its ſeeds; but, as ſoon as its ſeeds are allowed to arrive at a ſtate of complete maturity, almoſt every plant will die, and the few which happen to vegetate in the ſucceeding year, always appear ſickly.

The remedy, or rather preventive, which naturally preſents itſelf upon this view of the diſeaſe, is, a change of ſets from the hill country, to thoſe diſtricts where the curl has made its appearance; or planting a few for ſeed, ſo late in the ſeaſon, as to preclude the poſſibility of their arriving at full maturity; taking off the bloſſom would perhaps ſerve the ſame purpoſe. But, where none of theſe precautions have been adopted, the following obſervation may be worth attending to, viz. when cutting potatoes for planting, thoſe which preſent a hard ſtony-like ſubſtance to the knife, and break off ſhort, without yielding, when nearly cut through, will produce curled plants; while thoſe which cut ſoft, and yield before they break, will produce healthy plants. *

P. H.

P. S.—I am aware that a queſtion may be put, when the above theory is examined: Why is not the *whole crop* curled, when every plant of the preceding crop, from which the ſets were taken, had arrived at maturity? To which I beg leave to anſwer, It is poſſible (perhaps I might ſay probable) that ſuch of the bulbs only as had attained their full growth, (whether large or ſmall) are in a ſtate to afford ſap of that mature conſiſtence requiſite for bringing the ſeeds to perfection; in which caſe, thoſe bulbs that were in a growing ſtate when the ſtalk withered, may ſtill remain capable of reproducing a healthy ſucceſſion. If inſects were the efficient cauſe, as alleged by A. S., and froſted roots the eaſieſt prey to inſects, ſurely potatoes, cultivated in hilly countries, would be moſt obnoxious to their depredations, and conſequently to the curl.

With regard to the propriety of uſing ſcooped ſeed, I remark, that it is well known, that upon *very fine land*, and in particular

* See Tranſactions of the Society for Encouragement of Arts, &c. vol. VIII. and IX.

fine ſeaſons, the produce from *light corn* is little or nothing inferior to that from the *beſt*; yet this is ſo far from being the caſe in general, that a farmer would find himſelf moſt egregiouſly miſtaken, who ſowed ſuch ſeed upon a poor ſoil, from the reſult of experiments made under favourable circumſtances. The application is obvious. P. H.

FOR THE FARMER'S MAGAZINE.

On Feeding Sheep, and a Subſtitute for Folding, communicated by A. Hunter M. D. York.

An eminent farmer in Bedfordſhire has found, that nothing is ſo beneficial in feeding ſheep on turnips, by way of addition, as peas. A ſmall quantity, as two or three buſhels a day, to one hundred and fifty wedders, has a conſiderable effect; and the benefit to the land may be ſeen to an inch, in the ſucceeding crop of barley. As to folding, farmers begin to be divided in their opinions. An excellent farmer in Norfolk, who rents a farm of 1800 acres, never folds, and is well perſuaded that it is not at all neceſſary. Another farmer of eminence, in the ſame county, who never folds, informs me, that his leas, when he breaks them up for corn, pay him amply for leaving the ſheep at night where they feed by day. The practice begins to decline in the neighbourhood of Holkham; but certainly there are ſome tillage farms that cannot be advantageouſly managed without folding.

The trouble and expence of keeping a flock of ſheep for the purpoſe of folding, may probably be avoided by forming large ponds, ſo conſtructed as to receive and hold water. Into theſe ponds, let drains from the ſtables, cow-houſes, ox-ſtalls, pigeon and waſh-houſes be directed; and, in order to enrich the water, let all kinds of vegetable and animal ſubſtances be thrown in, particularly the contents of the neceſſaries and ſlaughter-houſe. It is preſumed, that this putrid water, when put upon the land by means of water-carts, will prove as beneficial as a flock of ſheep kept for the expreſs purpoſe of folding; and where no ſheep are kept for that purpoſe, ſuch will prove an excellent manure for meadow land. A pond of ſixty feet diameter, by ſix feet deep, will contain upwards of 700 hogſheads of water. It is preſumed, that a pond of this nature and ſize, when properly ſupplied with water and putreſcent bodies, may be equal in its effects to a conſiderable fold of ſheep. The putreſcency of the water may be greatly increaſed by occaſionally ſupplying the ponds

ponds with the refuſe of fiſh and ſea-weed, where they can be conveniently procured; and in all places within a reaſonable diſtance of ſea-ports, where ſhips are employed in the Greenland fiſhery, the farmer will find a ſeaſonable ſupply of putreſcent matter by the purchaſe of the whale blubber, after the oil has been taken from it. Such is the ſtrength of the laſt named ſubſtance, that it is well worth the farmer's while to be at the expence of carrying it in caſks to a conſiderable diſtance, for the purpoſe of giving vigour to his compoſt dunghills. The ancients were ſcrupulouſly nice in the formation of their dunghills; and it is a reproach to the preſent race of farmers, that ſo material a branch of their buſineſs ſhould, at this day, be ſo imperfectly known or attended to *.

If I remember right, the large common-ſewer of Edinburgh empties itſelf ſomewhere to the eaſtward of the city. Such being the caſe, would it not be a great improvement, if a well-conſtructed reſervoir was made to receive the excrementitious matter, the baſon being occaſionally repleniſhed with earth and ſmall rubbiſh? In this manner, many thouſands of loads of rich manure might be ſaved from the ſea, to which place the excrementitious matters are upon their paſſage. I am glad to learn that a partial benefit is already gained by the poſſeſſors of land betwixt the city and the ſea; but humbly preſume, that a greater benefit might ſtill be derived were a proper reſervoir to be conſtructed.

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* *Note by the Conductor of this Department.*

We are proud to rank a gentleman of ſuch eminent talents as Dr Hunter among our friends, and reſpectfully ſolicit a continuance of his valuable correſpondence. Without offering any remarks of our own upon the above hints, which, with the characteriſtic modeſty of a man of real ſcience, are thrown out with diffidence for the improvement of others, we ſhall only add, that it is highly probable, that water made putrid by artificial means, may be uſed to ſupply the place of ſheep-folding. The ſubject, at leaſt, is worthy of attention, and we recommend it to the conſideration of our experimental friends. In a work ſuch as ours, hints of this kind will be well received; for what is hinted by one perſon may be ſucceſsfully executed by another, who might not otherwiſe have thought of it.

The benefit of uſing water in a putreſcent ſtate, is thus deſcribed in a French work we have ſeen, called *Le Socrate Ruſtique*. 'The ſagacity of our philoſopher explained to him, that, to obtain manure thoroughly rotten, he has nothing to do but to preſerve a conſtant fermentation by frequent waterings. To facilitate this, he has ſunk ſeveral large pits which have wooden covers. In theſe pits he keeps the proli c water eſſential to many operations; firſt putting ſome thoroughly fermented cow dung at the bottom, he pours in a proper quantity of boiling water, and then fills up the pit with freſh water from a neighbouring pond; this brings on, in three weeks, a ſtate of putreſcence; which, without boiling water, could not be attainable in two months. He has thus a perpetual ſupply of corrupted water, as well for the purpoſes of vegetation, as to keep his dunghill in a conſtant ſtate of humidity.'

N.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

On raiſing Cabbages, as a Subſtitute for Turnips, with ſome Obſervations upon Raiſing and Keeping Potatoes.

GENTLEMEN,

It is of great importance in huſbandry, to provide plenty of food for cattle in Winter and Spring, when there is very little for them in the fields. The cultivated graſſes are now generally introduced, and aſſiſt the farmer, in this reſpect, greatly. For the ſame reaſon, turnips are alſo very valuable, but ſubject to fail by the fly, and, in Winter and Spring, by froſt. On this account, other plants have been, and may be, cultivated for Winter and Spring food; and, among theſe, I conſider cabbage to be of the greateſt utility. There are many kinds of cabbage; but, for the above mentioned purpoſe, I prefer the large Scots grey to every other, as they will thrive in any ground, if well manured. The moſt proper way of raiſing them, is, to ſow the ſeed about the middle of Auguſt, upon a rich border, well ſheltered from the north wind; and, if the Winter is not very ſevere, the plants will be ready for ſetting out by the end of March thereafter. The land, upon which they are to be planted, may be ploughed any time throughout Winter, when the weather is dry, laid out into drills with three feet interval, and dung ſpread therein. The drills may then be reverſed, and the cabbages planted with the firſt favourable opportunity after the time mentioned.

Some people may think, that the ſize of the drills is too narrow, and that room is not left for the cabbages to grow. But the kind recommended grows very hard, and does not ſpread ſo much as ſome other varieties. There ſhould alſo be ſome ſeed ſown in the beginning of March, which will furniſh plants, to ſupply thoſe that may die out after tranſplanting, and alſo for being uſed upon a ſeparate field, which will be attended with many advantages. One great benefit ariſing from cabbage, is, that they give the farmer plenty of green meat for his cows, during the Harveſt and early Winter months; as, by plucking off the outſide blades, no damage is done to the main ſtock. About the month of December, the crop may be taken up, and brought home to the farm-ſtead, or any other convenient place, where they may be ſtacked and thatched cloſe up, till they are wanted for the beſtial. Either ſtraw, ruſhes, or broom, will anſwer for covering; and, in this manner, food is always at hand, when acceſs to the field is prevented by ſtorms of froſt or ſnow. Another advantage of raiſing cabbage, is, that the land, ſo employed, may be uſed in the next ſeaſon, in growing potatoes, without any more dung; and, in the third year, be laid down with

with barley and graſs ſeeds, much cleaner than if it had been under naked ſummer-fallow.

I have obſerved different ways of raiſing and preſerving potatoes. Some people plant them according to the drill ſyſtem; others after the plough, and many with the ſpade; but few can give a reaſon for preferring any one of theſe ways to another. In wet ground, I make up all my drills in Winter, ploughing in the dung at the ſame time, which mixes it ſufficiently with the earth, before the ſeaſon of planting arrives. In dry ground, I dung as above, ploughing the ground in the Spring, two or three times, as I ſee cauſe, and put the potato in the ſide of the ſecond furrow, about half way betwixt the bottom and the ſurface, which gives the ſeed a looſe mould to grow in. My opinion is, that potatoes cannot be planted too near the ſurface, if they be covered with mould, provided that the earth is afterwards drawn well up to the roots, which method forwards their growth amazingly, both as to ſize and mellowneſs. In a rainy ſeaſon, I have often, with garden ſhears, gone betwixt the rows, and pruned off the ſide ſtems, thereby admitting the ſun and air to the roots, which is of great utility in promoting their future growth.

To keep potatoes from vegetating in the Spring, I have tried various ways. The only method that anſwered ſufficiently, was, by mixing them with moſs earth, brought home in the preceding July, and laid into a dry houſe, to remain till the potatoes were taken up, which ought to be done in good weather, ſo as they may be put into the pit or houſe, where they are to remain during the Winter, in a dry ſtate. After the potatoes are mixed with the moſs earth, I cover them with ſtraw and divots, uſing every degree of pains to prevent either the ſun or froſt getting acceſs to them. In this way, I commonly have potatoes, in the moſt perfect ſtate, all the year over; and I humbly recommend a trial of the above mode, to every perſon who is fond of this valuable eſculent, or who wiſhes to promote its extenſive cultivation. I am yours, &c. A BANFFSHIRE FARMER.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

GENTLEMEN,

The following Conſiderations on the Prices of Corn were lately put into my hand by a Gentleman of great reſpectability, who has long paid much attention to the corn trade of this country. I have reaſon to believe, that they were wrote either in 1766 or 1767, and, to the beſt of my knowledge, have not yet

yet been publiſhed. As the *Conſiderations* appear to be grounded upon juſt and ſolid principles, and as the ſubject diſcuſſed is confeſſedly one of primary importance, I ſhould ſuppoſe a favour would be conferred on the great body of your readers, by inſerting them in your Miſcellany as early as circumſtances will permit. I am, &c. N.

Conſiderations on the Prices of Corn.

THE cauſe of the high prices of proviſions has, of late years, been the ſubject of much inquiry; but the reaſoning has been ſo various, often ſo contradictory, that it is evidently a matter of great intricacy.

Some aſcribe the dearneſs of corn to the increaſe of paſture, and proportional diminution of tillage: They are miſtaken. Tillage is the great object of every farmer, as it is the moſt profitable management. Graſs is proper in all ſituations; but the farmer who has manure at command, will ſeldom reſt his ground above two years, even in the neighbourhood of great towns, where hay bears the greateſt price.

The clamour that has been raiſed againſt graſs, is therefore unreaſonable; it is a preparation and dreſſing abſolutely neceſſary for the production of corn. In ſome light, clean land, ſown graſs, for one year, is equal, if not ſuperior, to ſummer fallow; and in all lands, where manure can be eaſily procured, it has ſuperſeded fallow in a great meaſure. Corn has multiplied ſince the introduction of ſown graſs into this country, and muſt continue to do ſo, as the practice becomes more general. I mean to prove, that the ſcarcity and high price of corn cannot be imputed to the increaſe of paſture and ſown graſs, to the increaſed number of horſes, to paper money, luxury, or jobbing, or any other of the common topics ſo much inſiſted upon, but ſolely to the badneſs of the ſeaſons.

The hypotheſis for eſtabliſhing this upon the beſt grounds, is, a compariſon of the prices with the yearly productions of the earth. The difficulty is to find *data*. I throw out what falls within my experience, as a hint to be improved on.

I know to a certainty the particular ſtate of one farm, conſiſting of 50 acres, the property of a gentleman diſtinguiſhed for exactneſs in all his affairs. He keeps this ſmall farm in his own hand, entirely for amuſement, and has managed it preciſely in the ſame manner for forty-eight years. It is a ſtrong loamy ſoil, and high ſituation, partly upon a ſouth, and partly upon a north expoſure, and part lies upon the ridge of a hill; it is all fenced with hedges and hedge rows of trees, far advanced, and divided into ſmall fields,

fields, none of them above ſeven acres; and ſo well ſheltered, that it is little ſubject to local accidents of ſeaſons. It is divided into four ſhifts; one always in fallow, ſucceeded by wheat, peas and barley, in regular order, without the leaſt interruption, for the period above mentioned, and manured, upon the fallow only, with a compoſt of lime and dung. As the farm account has been kept with great exactneſs, I have collected the quantity ſown every year, and compared it with the produce. It is neceſſary to obſerve, that the ſower, who has been in the management, always retained the old prejudice in favour of thick ſowing; about a boll of wheat and barley upon each acre, and double that quantity of peas.

I find, upon an average of ſixteen crops preceding crop 1765, wheat has yielded 8 corns, barley $5\frac{1}{2}$, and peas $4\frac{1}{7}$. I have divided the ſaid period of ſixteen years into four, and find that, at an average of the firſt period, viz. crops 1750, 51, 52, and 53, all three grains produced 6 corns; and the medium price of theſe three grains, by the Edinburgh high fiars, was 13s.

The ſecond period, 1754, 55, 56, and 57, all three grains produced, at an average, $5\frac{1}{2}$ corns, which is about 4 *per cent.* ſhort of the former period; and the price of theſe three grains, at an average of that period, by the ſame fiars, was 14s. 4d., which is about 11 *per cent.* dearer.

The third period, viz. 1758, 59, 60, and 61, theſe three grains produced, at an average, $6\frac{1}{4}$ corns, which is about 16 *per cent.* more corn; and the price of theſe three grains, at an average, was 10s. 10d.: ſo they fell no leſs than 36 *per cent.*

The fourth period, viz. 1762, 63, 64, and 65, theſe three grains produced, at an average, $5\frac{1}{7}$ corns, which is about 24 *per cent.* leſs corn, and the average price roſe to 15s. 3d., which is 45 *per cent.* dearer than in the third period.

Thus, it appears, that the prices have kept pace with the produce of this farm, and that the difference of one fifth in the produce, had ſo great an effect upon the price, as to raiſe or lower it conſiderably; upon this principle, perhaps, one may hazard a conjecture, viz. that the greateſt crop in Britain does not afford more than $13\frac{1}{7}$ months proviſion. I am founded in this, from the facts I have ſtated; becauſe I ſuppoſe the ſixth corn upon the farm I have proceeded on, is a middling crop, and at that time the average price was 13s, which is moderate; ſo that the ſurplus and deficiency produce is nearly as 21 is to 27, but the difference of price is vaſtly greater. Still, however, the proportion of riſe and fall is the ſame, which is all that is neceſſary for my argument.

If I have ſucceeded in eſtabliſhing, that the badneſs of the ſeaſons is the cauſe of the high price of proviſions theſe ten

years

years paſt, it is of little importance to endeavour to refute the common opinions, that it is owing to other cauſes. I ſhall, however, glance at all of them. And,

1*ſt*, Reſpecting the increaſed number, and high feeding of horſes.—The waſte of horſes employed in luxury at preſent, may be compared to the whole produce of Scotland at a former period, not many centuries ago; and then it was an object for the Legiſlature (accordingly a ſumptuary law was made) to provide againſt the waſte of fodder, and hard meat in Summer, as it is called. But at preſent, the horſes employed in luxury bear a very ſmall proportion to thoſe employed in cultivation; and the increaſed produce goes far beyond the increaſed conſumption from luxury. The moors which now make ſo conſiderable a figure in the improvements of Scotland, muſt have for ever remained in their original ſtate, without either lime or marl; and as theſe manures could never have been carried by oxen, horſes are found abſolutely neceſſary for ſuch carriages, and every farmer may be allowed to judge for himſelf in the choice of horſes or oxen. He will certainly chooſe the cheapeſt; and the general practice of farmers is a proof, that horſes are fitter for the farmer's purpoſe. A farmer's labour is different from what it was formerly: It is now conſtant at all ſeaſons. And pray, what is he to make of oxen at long carriages, and in froſty weather? Though he were even to keep a double team, they are cut to pieces upon hard gravelly roads. Horſes anſwer in all weather, and in all ſituations. Oxen are only for the plough; and as, even then, they work ſlower, the expence of mens labour to work them, is conſiderably increaſed upon the farmer.

2*d*, Reſpecting paper money, as a cauſe of high price.—The price of the neceſſaries of life can never depend much upon the quantity of money, real or artificial, in a country; they muſt take their value chiefly from the quantity of them at market. We have nearly the ſame ſum of money in the circle all the year round; and yet the price of the neceſſaries of life fluctuates greatly.

But money, as it promotes the cultivation of our lands, increaſes the quantity of food from them; and by bringing more product to market, leſſens the price.

3*dly*, Reſpecting luxury as a cauſe of dearth.—The neceſſaries of life are not objects of luxury: It may drain us of our ſpecie, by the importation of foreign commodities; but it never can raiſe the neceſſaries of life. Luxury is confeſſedly carried the greateſt length in great towns; and there the neceſſaries of life are always cheapeſt.

4*thly*,

4thly, Reſpecting monopolizers, or jobbers.—This is a moſt unreaſonable clamour. The conſumer has always an option to deal with the farmer at once; but the farmer will ſell his produce a little cheaper to the corn-factor, becauſe he gets his money by the lump, and the corn-factor can afford to ſell it to the conſumer for a ſmall profit. Every place does not afford conſumption for its produce—Buchan in Scotland, and Northumberland in England, are inſtances of this. It muſt rot on hand, or be ſold to the corn-factor. Corn-dealers deſerve not only protection, but encouragement. The farmer ought to have no other object, but the cultivation of his farm; and be under no farther advance, than the expence of ſtocking and improving it. The burthen of holding his crop for a market, and the difficulty of diſpoſing of it in trifling quantities to the conſumer, and the outlay of the price, becomes a trade in itſelf, which employs his mind, and diſſipates his time, at a far greater expence, than any abatement he gives of the price to the corn-merchant; while the conſumer gains nothing by it. The more any trade is branched out, and the more ſtocks there are employed in it, the trade is carried on with greater facility and advantage to the conſumer. The great bar to the introduction of flax into this country, is known to be the want of a perſon between the farmer who raiſes it, and the ſteeping and milling of it. Farming is like machinery; the ſimpler, the better.

The land rents of Scotland have riſen greatly of late years. Perhaps it has partly been owing to improvements, and theſe to the facility of credits: but though credits ſhould become more difficult, improvements muſt continue to go on, as the means are known, and the expence can be eſtimated. Much land has been improved at an expence beyond its worth, by forcing manures; which, after they have diſſolved the vegetable ſubſtances in the ſoil, leave it in a worſe ſtate. It can then only be recovered by reſt, or vegetable manures. The former requires a very long time, and the latter is not to be purchaſed, in any great quantity, at a diſtance from great towns.

But the improvements of land may henceforth be conducted with more caution, and conſequently become leſs frequent upon ſoils naturally barren: For though barren ſoils may, at a great expence, be forced to yield crops equal to the beſt and higheſt rented lands, yet the good land will eventually be found the cheapeſt to the tenant; as a judicious ſhifting between corn and graſs, with little manure, will afford a conſtant ſucceſſion of good crops; while the bad ſoil is wore out, and cannot be repaired, but at an expence, which the produce cannot repay. Such land, in all ſituations diſtant from manure, had better be left to nature; if

continued

continued in graſs, it will always yield a rent, equal to the food that is in it; for, on the whole, in a country like Great Britain, far advanced in cultivation, corn and graſs land muſt continue to yield an equal rent; and every improved piece of land, aſcertains the value of the wildeſt moors with greater certainty and preciſion.

The rapidity of our improvements in Scotland, of every kind, has raiſed the price of labour greatly; but it has alſo multiplied hands, and prevented many people from travelling to England, and elſewhere, for work. Labour may ſtill continue to riſe a little higher, but not much. A country like this, in its progreſs to cultivation, muſt feel ſuch inconveniences; becauſe, manufactures being more forward than agriculture, hands muſt be tempted from manufactures to agriculture. As we are more improved, agriculture will require fewer hands; and the means of ſubſiſtence being then increaſed, manufactures will be fuller of them, and labour will be cheaper, and bear an equal proportion to the expence of the labourers maintained; which is not the caſe at preſent.

At the ſame time that the neceſſaries of life fall, the rents of land may riſe, becauſe the lands produce more, and at leſs expence of labour; for the real value of land, becoming more fixed and certain by cultivation, the rent will be exactly what remains after the expence of management.

BRANCH II.

Review of Agricultural Publications.

General View of the Agriculture of the County of Suffolk; drawn up for the conſideration of the Board of Agriculture, by the Secretary.

We have read this report with pleaſure, as it contains a great maſs of uſeful information, diſtinctly conveyed. In ſome points, indeed, we are diſappointed, owing to a rigid adherence to a doubtful rule, to call it no worſe, which the learned Secretary has endeavoured to eſtabliſh for the conduct of ſuch works—Not to *touch* at all, or to *touch very lightly* on thoſe articles which might, with equal propriety, be inſerted in the report of any other county. Extreme caſes try the truth of a principle beſt.

Hops

Hops are cultivated in Kent, Suffolk, and Surry; therefore, in the reports of all theſe counties, the culture of hops ought to be altogether omitted; or, at leaſt, only ſlightly mentioned; becauſe, in the language of the Secretary, 'any chapter, ſection, 'diſſertation, &c. might be taken from the account of one 'county, and with equal propriety inſerted in another.' We regret that our limits do not admit of our following the Secretary through every diviſion of his ſurvey: neither, indeed, is this neceſſary. We ſhall take a curſory view of ſuch articles as ſeem to merit attention, giving our remarks where ſuch appear requiſite. Some particular modes of cultivation, we may perhaps take up hereafter more in detail, in another department of our Magazine.

Suffolk is ſuppoſed to contain 800,000 acres, having a dry climate; but, like all the eaſtern coaſt counties, is ſubject to long and ſevere Winters, and cold, late Springs. Its ſoil is much diverſified: For the moſt part, a ſtrong loam, on a clay-marl bottom: In ſome places ſandy loams, on a ſimilar retentive bottom: Putrid vegetable mould, more inclined to ſand than clay, of extraordinary fertility: A conſiderable tract of ſandy ſoil, of various degrees of fertility; ſome of which is ſubject to *blow*, and ſome approaches to loam: A large tract of *fen*, or peat bog, from one to ſix feet thick, on a white clay or marl bottom; part of which is almoſt uſeleſs, from failure of drainage; but a large part has lately been completely drained, and is under cultivation: Many unproductive heaths, which have, from time immemorial, as in many other parts of the kingdom, been exceſſively deteriorated, by paring and carrying off the ſurface for various purpoſes.

There are no known minerals in Suffolk: It is well watered, and very indifferently wooded. Its property is a good deal ſubdivided, having no vaſt overgrown eſtates, but a numerous population of rich occupying proprietors, from 100 to 400l. a year, who cultivate their own lands with ſpirit and judgement.

On the ſubject of tenures, nothing particular is noticed, except a moſt extraordinary privilege attached to one farm, the occupier of which has a right to the ſheep paſturage of the whole open field lands in the townſhip for two years in every three, and of many of the incloſed paſtures and meadows, after the hay is removed, and for which he is bound to *fold* a certain number of acres annually for the other farmers. This worſe than Gothic barbariſm requires no comment.

Under the article *Farm-houſes and Repairs*, it is ſaid, that on one eſtate of 15,000l. a year, the expence of theſe things to the proprietor, amounted to 40,000l. in eleven years: a deduction of 3636l. a-year! We have often had occaſion, in the ſouth of

England, to remark the enormous and abſurd expence of *barns*, for ſtoring up, not only the whole corn of a farm in the ſtraw, but even hay alſo. Surely, both are much better and more cheaply ſecured in ricks or ſtacks properly thatched; as is univerſally the practice in the worſe climate of Scotland, and the north of England. On an eſtate of 15,000l. a-year, properly conducted, 20,000l. might erect complete farm-houſes and all the neceſſary buildings, altogether new; ſo as not to require one ſhilling more from the proprietor, during many generations.

The rent mentioned for bad cottages, 40s. to 3l., with or without a ſmall garden, is ſurely high; eſpecially where wages are ſo low as in Suffolk. The propoſal, p. 12, of making cottages altogether independent of the farmers, we think founded on erroneous views of humanity. The relation between maſter and ſervant, muſt be kept up, ſo as to give ſufficient authority. How would any great proprietor be pleaſed, if he were reſtricted, by ſuperior authority, in the choice of his factor, coachman, butler, cook, and valet, by appropriating the apartments of thoſe neceſſary domeſtics, in his princely manſion, to men not of his ſelection? Why, then, controul the farmers, in their choice of ploughmen, ditchers, and other neceſſary hands? The conſequence of ſuch a plan, univerſally enforced, would be, to oblige all farmers to keep *unmarried* men ſervants in their families, to the evident and vaſt injury of the population of the country.

In the article, *ſize of farms*, p. 14, we are glad to ſee the learned Secretary has not joined the faſhionable cry for ſmall farms; which are neither beneficial to the country, the proprietors, nor the occupiers. In our experience, ſmall farmers lead a harder life, on poorer fare, than the ſervants of larger occupiers; and the rent they difficultly pay, is extracted moſtly from other jobs, ſuch as highway labour and leading fuel, not from the profits of their ſmall farms, which ſcarcely ſuffice to keep up a few half-ſtarved horſes, often replaced ſeveral times a year.

In the article of rent, p. 16, we do not pretend to judge how far the Secretary may be right, in eſtimating the average of the county at half a guinea an acre. Such calculations, neceſſarily reſting on uncertain *data*, often on mere aſſumptions, muſt be erroneous.

In regard to tithes, the Secretary is exceſſively delicate, and touches them with a ſparing hand, both in the general account of the county, at p. 17, and in deſcribing the obſtacles to improvement. They are ſaid to be moderately exacted in Suffolk: So much to the credit of the preſent tithe proprietors; but who can anſwer for their ſucceſſors? Until tithes are regulated, on fixed

fixed and invariable principles, England can never be improved to the extent of which it is ſuſceptible.

In the article of *Poor's rates*, p. 18, we muſt acknowledge our happy ignorance, from the abſence of that complicated ſyſtem of impolicy, chicane, and oppreſſion, in Scotland, where, we have reaſon to know and believe, the poor are on a much better footing than in England, notwithſtanding the enormous ſums there levied for their ſupport. Except in times of exceſſive dearth, and in caſes of peculiar hardſhip, from long ſickneſs, or uncommonly rapid increaſe of families, we conceive all ſhould live by their labour; and not have their *wages*, partly from their employers, and partly from the pariſh. This blunts and deſtroys the fineſt feelings of the human mind, and renders the poor careleſs of their character and conduct. Age and diſeaſe have undoubted claims to aſſiſtance; idleneſs and debauchery deſerve the ſupport of a correction-houſe, but ought never to look for pariſh allowances. Benefit Societies ſhould not only be encouraged, but it ought to be a neceſſary duty on every one to become a member. Wages ſhould be regulated on fixed and liberal principles of reciprocity. It is impoſſible, a rate of 30s. in the pound rent, as has been the caſe in Lavenham pariſh (ſee p. 24.), could ever be required, except upon an improper plan, ſhamefully miſmanaged.

We moſt cordially concur with the Secretary, p. 24, in his commendations of leaſes, which ought always to be granted, at leaſt, to tenants of ſpirit and having capital, and under no reſtrictions but ſuch as are requiſite to prevent deterioration, eſpecially at the end of the leaſe. We concur likewiſe in the ſentiments of his next ſection, reſpecting the number of rents which a tenant ought to draw from the ſoil; while, at the ſame time, we conſider the aſcertainment of that point as altogether impoſſible, *a priori*; becauſe it depends on the involution of a vaſt variety of circumſtances, in ſoil, ſeaſon, ſituation, markets, &c. &c., ſo extremely complicated as to defy inveſtigation.

Reſpecting ſeveral of the implements noticed in chap. 5, we can ſay little, becauſe unacquainted with their particular conſtruction; but moſt heartily agree with the Secretary in reprobating heavy carts and waggons, and approving light one-horſe carts. We likewiſe ſtrenuouſly concur in his recommendation of the ſickle, and binding all ſorts of grain: To which may be added, that all grain ought to be cut quite cloſe to the ground, leaving the ſtubble as ſhort as poſſible. We know that this practice can never be adopted, ſo long as grain is lodged in barns: But we have already given our opinion againſt this expenſive, ineffectual, and abſurd cuſtom.

The Extirpator, p. 28, ſeems a good inſtrument for eradicating annual weeds, in ſoils unincumbered with ſtones: But we ſee no neceſſity for combining it with the cumbrous and expenſive wheeled gear. In fact, it is the implement called Scuffler in the North, or nearly ſo, only with that unneceſſary complication.

We are highly pleaſed with the inſtance given of *Coney Weſton incloſure*, p. 30.; and could have wiſhed a conſiderable number of ſuch inſtances had been adduced. Such facts are greatly ſuperior to theories, or *poems*, manufactured in a London ſtudy, of *deſerted* villages, and other fabulous effects of incloſure. The writer of this article had the following fact, lately, from the reſpectable proprietor of a conſiderable eſtate in Yorkſhire. In his grandfather's days it was a townſhip, with large common-fields and waſtes, divided into a number of ſmall farms and copyholds; the whole population dwelling in one town or village. It is now all incloſed, and in farms from 150 to 400l. a year; the farm-houſes in the centres of farms, and the village *deſerted*. The *rural* population now *exceeds* the former *village* one, by 42 individuals, both taken from actual enumeration, while no manufacturers have been introduced.

We agree, in a great meaſure, with the Secretary, in his oppoſition to fallow, p. 33, which can never be requiſite to *preſerve* the land clean: But we think it may be often highly neceſſary to *make* it ſo; eſpecially from root weeds.

We could wiſh for room to inſert a detailed account of the mode of dibbling, which is practiſed in Suffolk to great extent, and with great ſucceſs; but our limits forbid, at leaſt in this place: Perhaps it may be reſumed, at ſome future opportunity, in our Magazine; but, in the mean time, our readers may find conſiderable information in the text and notes of the Suffolk Survey, on this ſubject. We cannot help noticing the apparent abſence of drilled corn crops, in a county where dibbling is carried on with ſo much ſpirit; eſpecially, as drilling ſeems to be attended by moſt, if not all, of the advantages of dibbling, without the great expence of the latter.

The quantity of ſeed given for drilled beans, two buſhels an acre, ſeems very ſmall; we are accuſtomed, in the North, to allow nearly three times that quantity. We object, likewiſe, very ſtrongly, to the culture of beans with one furrow: A winter furrow, croſs-ploughing, and ſeed furrow, ought uniformly to be given, if poſſible; and if this be followed by accurate horſe and hand-hoeing, beans may, on clean land, almoſt always preclude fallow.

A good account of buck-wheat huſbandry is given, p. 61, together with a new plan, in which buck-wheat is ploughed in for manure, in the ſame year in which the land has produced a crop of winter tares cut green. In p. 70, a diſtinct comparative experiment is recorded, which aſcertains the difference between Winter and Spring tares. Yet, after all, the profit upon this vaunted new double-crop ſyſtem, as detailed at p. 67, is only ſtated at 2s. 6½d. *per* acre, on an expence of 8l. 5s. 5d.!! A profit which does not even pay intereſt of outlay, far leſs is it capable to contend with untoward ſeaſons, or other accidental circumſtances.

It is aſtoniſhing, that, in the account of turnip huſbandry in Suffolk, p. 75, *drilling* is not even mentioned. This is wonderful indeed, in a county where *dibbling* is ſo much in repute, that one farmer has dibbled 258 acres in one year. It is not, therefore, ſurpriſing, that the average value of the turnip crop in Suffolk, ſhould be ſo low as 35s. an acre. In the drill huſbandry, we know, they often run from 5 to 10l.; and, in particular circumſtances, have known a drilled crop ſold for more than 16l. an acre.

In p. 86, a good account of the culture of ſainfoin is given: And, in p. 88, a very diſtinct one of the hop huſbandry. The minutely detailed account of the expence and produce of the latter, we conſider as fallacious and uſeleſs; becauſe uncertain, as depending on aſſumed *data*, or on circumſtances of place and ſeaſon that are conſtantly changing.

Cabbages, in p. 94, are ſtrongly recommended, and ſuppoſed to be double the value of turnips. This is not to be wondered at, conſidering that cabbages are cultivated in rows three feet aſunder, regularly horſe and hand-hoed; while the latter are ſown broad-caſt, and perhaps not hoed at all. Cabbages get an enormous quantity of dung, even as far as forty-three horſe cart-loads to the acre; while we know that forty ſingle horſe cart-loads would produce excellent turnips: And, after all, cabbages are allowed to injure the ſucceeding crop; and, while they coſt from 3l. 16s. 6d. to 5l. 1s. 3d. an acre, a good crop is only valued at 4 or 5l.!!

In the account of the culture of carrots, given p. 103, it is ſtated, that this valuable root has been cultivated in the Suffolk ſand diſtrict for 200 years. We have reaſon to believe, that no article is more valuable, on ſoils properly adapted to its production.

The culture of lucern and chicory are merely hinted at in p. 119; and the reader is referred to the Annals of Agriculture, a favourite publication by the learned Secretary, for what ought certainly

certainly to have been found in the Survey. We have, at this place, a detailed account of hemp cultivation, which our limits do not admit us to abſtract.

In the graſs land management of Suffolk, p. 138, there ſeems nothing worth notice, except its badneſs. Generally ſpeaking, it is our opinion, that grazing ought to form part of the rotation, or courſe of huſbandry, in all well conducted farms; and that perennial *lea*, and continual meadow, or old-graſs hay, ought to be baniſhed from lands that are ſuited to carry good corn crops. It would lead far beyond our limits to diſcuſs this ſubject; but experience teaches us, that clover and rye-graſs hay anſwers perfectly for horſes and cattle of all ſorts; and that the alternate ſyſtem, in which paſture forms part of the courſe, is far more profitable to the occupier, and leaves the land in better condition every way, than continual tillage. To us, who are uſed to excellent crops from a buſhel of clean rye-graſs ſeeds, with from twelve to twenty pounds of the different clovers, *twenty ſacks of graſs ſeeds to each acre* ſeems extravagant and abſurd.

Nothing ſingular occurs on the ſubject of draining, p. 152, except that ſtraw or ſtubble is uſed as the filling material. Eſpecially on ſtiff clays, ſod draining might perhaps be found preferable, where ſtones or bruſhwood cannot be got.

The obſervations at p. 161, reſpecting paring and burning, as wearing out the ſoil, recal an inſtance we have heard long ago, of liming being prohibited in a part of Scotland for the ſame reaſon. The truth is, the goodneſs or badneſs of both depend upon the after-management, as the newly acquired fertility may be exhauſted by ſubſequent over-cropping.

In p. 165, the Secretary deſcants on the chemical effects of marl, yet gives no chemical teſt of the calcareous properties of Suffolk clay marl: And what he terms ſhell marl, at p. 174, is, in fact, ſhell ſand, a perfectly different ſubſtance.

The Secretary ſeems to conſider, perhaps juſtly, the Suffolk cows as very profitable, eſpecially for milkers. They are univerſally polled, and of a ſmall ſize, ſeldom feeding to more than 50 ſtones, of 14 pounds: But we muſt refer to the Survey, p. 179, for an account of the Suffolk management of cattle, which has nothing peculiar.

The hardineſs of Suffolk ſheep for *folding*, is much extolled in p. 190. So long as miſerable commons, and execrable common-field lands prevail, folding may be a deſirable, though wretched, ſubſtitute for paſture in rotation, on extremely ill conducted fallows. But, in this bad ſyſtem, the keep of ſheep for this purpoſe is enormous; in Summer, they feed on bad paſtures; and in Winter and Spring, on turnips, hay, rye, tares, and aftermath. We do not therefore wonder at the ſmall annual profits

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on a flock of ewes, which the Secretary averages at 9s. a head. A ewe on Tweed-ſide, that did not produce 20s. in lamb and wool, independent of additional value in fattening off, would not be thought worth keeping. But, on Tweed-ſide, they are never folded; neither do they get the enormous allowance for Winter and Spring food, which ſeems requiſite in Suffolk.

In the chapter on political œconomy, beginning at p. 205, a very large portion is allotted to the poor ſyſtem. We have already acknowledged our happy ignorance of this hydra ſyſtem in Scotland; therefore, ſhall not, at this time, enter on the ſubject. Yet, our experience of the decent comfort afforded, at comparatively ſmall expence, in Scotland, during the two laſt terrible years of ſcarcity, joined to the information we have received, warrant our general diſapprobation of the Engliſh ſyſtem, as enormouſly expenſive, impolitic, and inefficient.

We are next preſented with a ſeries of ſtatiſtical calculations on the produce of land in Suffolk, in which a great deal of ingenuity is exerted, in dividing this produce accurately between a vaſt variety of intereſts; but we are apt to conſider ſuch ſpeculations as founded on vague hypothetical aſſumptions, and, conſequently, altogether inconcluſive and uſeleſs. What occurs to us as moſt extraordinary in the *data*, is the wonderfully ſmall aſſumed produce *per* acre. In *well* managed rich loam, four quarters of barley, or three quarters of wheat, are conſidered as a fair average: With us, on ſuch ſoils, we ſhould expect one half more. Turnips and clover are valued proportionally low. We attribute this to the impoveriſhing effects of eternal aration.

On the obſtacles to improvement, p. 289, more eſpecially as relating to the tithe ſyſtem, from which, in Scotland, we are happily free, as we do not mean to enter upon political diſputation, we ſhall be as ſhort as the Secretary; although we cannot ſubſcribe to the antijacobin notions of the Reverend Mr Carter. We are apt, perhaps erroneouſly, to conſider an obſtinate refuſal of ameliorations, (to uſe a gentle expreſſion), as involving danger, which might be avoided by prudent conceſſion. Whether to the wiſdom or rapacity of the ancient Scotiſh Legiſlature, we, in this northern part of the united kingdom, owe our exemption from tithe, does not belong to us to determine; but we know, that to that exemption we owe our freedom from numerous vexations, which obſtruct the progreſs of improvement among our ſouthern brethren.

On the whole, we conſider this ſurvey of Suffolk, as a fair, candid, and well written report. We meant to have given a liſt of local terms, uſed and not explained, as *theaves*, *crones*, *coombs*, and ſeveral others; but ſhall only notice, that all ſuch ſhould be

refrained from, as much as poſſible; and, when neceſſarily uſed, ought to be uniformly and diſtinctly explained.

R r r.

Tranſactions of the Society, inſtituted at London, for the encouragement of Arts, Manufactures, and Commerce—Volume 19th, 1801.

This ſociety, which was inſtituted in 1754, and conſiſts of about 1400 members, has done more to promote the trade and agriculture of Great Britain, than any other inſtitution in the iſland. They give rewards for uſeful inventions, diſcoveries, and improvements in theſe arts; and, in their general management, have hitherto been guided by the moſt liberal and diſintereſted principles.

It is out of our power, at this time, to enter farther upon the chief objects of this meritorious and public-ſpirited inſtitution. We ſhall therefore confine ourſelves to a rapid ſketch of the ſeveral papers communicated in the agricultural department of this volume.

The firſt communication is from Henry Vernon Eſq. of Hilton Park, near Wolverhampton, to whom a gold medal was adjudged, for planting 11,600 elm trees. 2. Mr Selby, of Otford Caſtle in Kent, details the manner in which he planted twenty-one acres with oſiers, for which a premium of thirty guineas was granted him. 3. The gold medal was beſtowed upon Thomas Jones Eſq. of Hafod, in Cardiganſhire, M. P., for the account given of his valuable and extenſive plantations. 4. A ſtatement of the management of ſeveral fields of Spring wheat, crop 1800, is given by Mr Brown at Markle, near Haddington, the only competitor from North Britain, which, the Society ſays, 'particularly demands the attention of farmers, when bad ſeaſons prevent the Autumnal ſowing of wheat.' 5. An intereſting account of the method of making clover hay, as practiſed in Courland; for which the thanks of the Society were voted to Mr John Taylor of Mancheſter. 6. The ſilver medal was granted to Mr John Palmer of Maxſtock, in Warwickſhire, for communicating a method of harveſting corn in wet weather. This method conſiſts in thraſhing the corn immediately after it is cut, and drying it on a malt kiln; a practicable ſcheme where thraſhing machines are uſed; but altogether impracticable in the old way of thraſhing by flails, at leaſt to any extent. 7. The gold medal was conferred on Thomas Fogg Eſq. of Bolton, in Lancaſhire, for improving waſte land. Mr Fogg's account appears to be of an intereſting

nature.

nature. 8. A deſcription of the guttering or drain plough, preſented by the Duke of Bridgewater to the Society, is given. 9. We have a deſcription of a machine for ſowing turnips, tranſmitted by Thomas Andrew Knight Eſq. of Elton, near Ludlaw; for which the ſilver medal was adjudged. This machine is not a new invention; and, though formerly much uſed, is now ſupplanted by others, conſtructed upon more improved principles. 10. The thanks of the Society were voted to the ſame gentleman, for an ingenious communication on the deſtructive effects of the aphis and blights on fruit trees. 11. Mr William Liſter of Northampton, deſcribes an implement of huſbandry, ſaid to be invented by him, and named 'a cultivator.' This implement has been long known to us, under the name of an 'edget;' though Mr Liſter has procured the ſilver medal for his invention. 12. An ingenious communication is preſented from the Reverend Mr Munnings of Eaſt Dereham, in Norfolk, relative to the comparative advantage of the drill and broad-caſt method of cultivating turnips, altogether in favour of the firſt mode. The drill uſed by Mr Munnings, appears to be the old-faſhioned one, introduced into Scotland more than forty years ago; which proves that, in drilling turnips, our ſouthern neighbours are far behind. 13. The thanks of the Society are given to Thomas Eccleſtone Eſq., Scaresbrick-hall, Lancaſhire, for his invention of an augre or borer, for draining boggy lands. 14. For planting 133 acres of waſte land, Nicholas Aſhton Eſq., Wooltonhall, near Liverpool, received the gold medal. This extenſive improvement was executed by Meſſrs Dickſon & Sons, nurſerymen at Haſſendeanburn, near Hawick, Scotland, gentlemen of acknowledged experience and probity. 15. The thanks of the Society were voted to Edward Jones Eſq. of Weprehall, in Flintſhire, for his communication on the deſtruction of the grub of the cockchaffer, which ſeems to be an ingenious performance. 16. Mr John Horridge of Raikes, near Bolton, Lancaſhire, gives a circumſtantial account of his method of preparing and applying compoſts for manure, which appear to have paid him handſomely. The earth uſed is deſcribed as a ſpecies of peat, but of a more ſolid ſubſtance than peat generally is; and, after being mixed with lime, and applied to the ground, produced excellent crops of potatoes, grain, and graſs. We wiſh room could have been ſpared to extract the article, as it confirms the opinion we have long held, as to the utility of compoſts, eſpecially where the baſis conſiſts of rich virgin earth, greaſy loam, or clayey marl; and we ſuſpect, that the kind uſed by Mr Horridge had an affinity to the laſt variety of ſoil.

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The communications on chymiſtry, polite arts, manufactures, mechanics, and trade, are numerous, and ſeveral of them very valuable; but theſe articles, however meritorious, being foreign to our plan, we ſhall not enter upon them.

We cannot conclude this article, without expreſſing the ſtrong ſenſe entertained by us, of the utility of this Society. The field they have to labour is extenſive; but if a numerous liſt of ſubſcribers, (the greateſt part of whom are the firſt characters in the iſland), and a judicious ſyſtem of management ſteadily followed out, can inſure ſucceſs, a doubt cannot remain concerning the benefits which the commerce and agriculture of Great Britain muſt derive, from the perſevering efforts of ſuch a laudable inſtitution. N.

The Forcing, Fruit, and Kitchen Gardener, by WALTER NICOL, *Author of the Practical Planter, &c. pp.* 427. *Boards. Edinburgh.* Creech. 1802.

THE operations of the gardener are frequently directed to ſuch objects, and always conducted upon ſuch a ſcale, as to render them, for the moſt part, of no great importance to the farmer. There is a relation, however, among the various cultivators of the ſoil, which gives them a ſort of intereſt in each other's labours and improvements. Our readers, therefore, will not think that we ſtep far out of our road, when we give them ſome account of a good book upon gardening. To ſuch of them as are gardeners, either for pleaſure or profit, we can ſafely recommend this volume, as containing an excellent practical illuſtration of the various topics on which it treats. The favourable reception of a book by the public, if not a proof, is, at leaſt, a preſumption of its worth; the one before us is a third edition, which ſeems to expreſs the public approbation. This edition is ſaid to be conſiderably enlarged; but as we have ſeen none of the former, we can neither judge of the extent nor importance of the new matter.

Mr Nicol divides his volume into three books: The firſt, and by far the largeſt, treats of *forcing*; the ſecond, of fruit produced on open walls, eſpaliers, and in orchards; and the third is devoted to the kitchen garden. The introduction contains ſome general obſervations upon the practice of forcing, and the ſtructure of hot-houſes. Forcing, the author admits, favours more of luxury than any other branch of gardening; but, at the ſame time, he alleges that it may be converted into a ſource both of

profit

profit and rational amuſement. 'May not the wealthy,' he aſks, 'eat a melon, peach, bunch of grapes, or pine-apple, with as much propriety as drink port, claret, champaign, or madeira?' We certainly think that they may; and we think that thoſe who have leiſure for ſuch employments, and money to ſpend upon them, may devote both to a worſe purpoſe: if they could not rank with the benefactors of mankind, they would, at leaſt, not diſturb the peace, and injure the property of honeſt people by their amuſements. Thoſe, too, who muſt always be manufacturing theories, and aſtoniſhing the world with new ſchemes and improvements, might indulge themſelves here without reſtraint; their whims would not be half ſo hurtful, as upon ſubjects of more general intereſt.

'A ſettled plan of conſtructing hot-houſes,' ſays the author, p. 3. of the introduction, 'is by no means yet fixed; moſt gardeners and hot-houſe builders differing in ſome point or other.' This is an article of importance, and there are extremes which ſhould be avoided. But it would appear, that the failure of ſucceſs in this ſpecies of horticulture is leſs in conſequence of the improper conſtruction of the houſe, than in the preparation of proper ſoil, and the general management; ſince, in ſome inſtances, we find excellent crops produced in houſes very indifferently conſtructed; and in others, very indifferent crops, in houſes well conſtructed. Another remark, equally worthy of attention, regards the proportion that the number of furnaces in a hot-houſe, ſhould bear to the ſize of the houſe. By a miſtaken œconomy, people, in order to ſave a little in the original coſt, and afterwards in the expence of fuel, allow not a ſufficient number of furnaces; by conſequence, exceſſive fires muſt be kept on, which are in danger of burning up every thing in one part of the houſe, while every thing in the other is in equal danger of being ſtarved.

'In the cultivation (p. 7.) of exotic plants and fruits in hot-houſes, regard muſt be had to the climate of their nativity; and the beſt endeavours ſhould be uſed to imitate it in the hot-houſe, introducing the natural changes of the ſeaſons with equal care.' This, certainly, is a matter of great importance; a delicate plant may be hurt by too much, as well as too little heat, or by making the tranſitions more rapidly than nature does in its native climate.

Chap. 1. of Book I. contains directions for the culture of aſparagus, firſt in dung hot-beds, and then in flued pits; the latter method, the author, for reaſons ſtated, decidedly prefers, but does not think it neceſſary that pits ſhould be kept ſolely for that uſe; after the production of early aſparagus, the pit may be profitably employed for a variety of purpoſes.

Chap.

Chap. 2. is devoted to cucumbers. Theſe, too, are ſometimes raiſed upon dung, hot-beds, and ſometimes in flued pits: the former, however, is here preferred for this plant, unleſs for ripening late fruit when the ſeaſon is far advanced.

Chap. 3. on the cultivation of cherries, is divided into eight ſections, containing directions for the conſtruction of the cherry-houſe, the preparation of the borders, and planting of the trees; training of the dwarfs, that is, the trees ultimately to remain in the houſe; the temperature of the houſe; admiſſion of air; watering, waſhing, and ſteaming; inſects that infeſt the cherry-houſe, and method of deſtroying them; and the cultivation of cherries in the conſervatory and peach-houſe.

As our readers have been furniſhed with ſeveral recipes for deſtroying caterpillars, we ſhall preſent them with another which Mr N. gives in this chapter, and aſſures us he has found efficacious, p. 62. 'Take of ſoft ſoap, two pounds; flowers of ſulphur, two pounds; leaf, or roll tobacco, one pound; nux vomica, two ounces; and oil of turpentine, half an Engliſh gill: Boil them all together in eight Engliſh gallons of ſoft, or river water, to ſix; and ſet it aſide for uſe.' This liquor, about milk warm, muſt be put upon the trees with a ſponge, after they have been previouſly waſhed from duſt or cobwebs, and at a time when they are not in leaf, as it would deſtroy the foliage.

Chap. 4. on the management of figs, is divided into nearly the ſame number of ſections, and on the ſame topics as the laſt: it is not neceſſary, therefore, particularly to analyze it.

We next have a very long chapter on the culture of vines; where the author, after giving directions, as formerly, about the conſtruction of the houſe, &c. proceeds to enumerate the different kinds of vines, and recommends thoſe which he conſiders of the beſt quality. We cannot help thinking that he has expreſſed himſelf rather inaccurately in this place. 'Amongſt the numerous varieties of grapes,' ſays he, p. 86, 'I do not know above eighteen or twenty kinds worthy of a place in the vinery; and even that number cannot have places in an ordinary ſized houſe: but, where there are two or three houſes, a variety, to the extent of twenty-four kinds, may be encouraged without tranſgreſſing the bounds of moderation.' How can four or ſix kinds, more than are worthy of a place in the vinery, be encouraged, without tranſgreſſing the bounds of moderation?

Chap. 6. Melons. We know not why the author has ſeparated this ſo far from the chapter on cucumbers, as the culture of theſe fruits is ſo ſimilar, and as he has referred his readers to what was ſaid in chap. 2. with the addition of little new here.

Chap. 7. on Muſhrooms. Some curious circumſtances in the propagation of this plant have been employed as arguments for the

the doctrine of ſpontaneous, or equivocal generation. It ſeems to be a ſtrange kind of philoſophy, which leads men, becauſe they cannot account for the production of a few plants, in particular ſituations, to allege that they will grow where no ſeed has ever been previouſly depoſited. This doctrine might have been permitted, by this time, to ſleep in peace with the ancient belief that men once ſprung from the teeth of a ſerpent. We do not, however, impute this doctrine to Mr N.; he merely takes notice of it, and proceeds to give directions for cultivating muſhrooms, without accounting for their origin.

Peaches and nectarines bearing much reſemblance to each other, and requiring ſimilar management, the author treats of them together in chap. 8. Thoſe fruits are produced in houſes conſtructed for the purpoſe, on open flued walls, in apartments furniſhed with oiled paper frames; and, in others, with a back, but no front flue. Againſt the two laſt, the author objects. Oiled paper, he ſays, is too dark, to admit the rays of the ſun ſufficiently; and where a houſe has a back flue only, it is impoſſible to keep the temperature ſufficiently high, without endangering the trees. The ſame plan is followed in this, as in the chapters on vines, cherries, &c. The laſt ſection contains directions for the cultivation of peaches and nectarines on flued walls. Mr N. recommends a kind of thin canvaſs ſcreen, which may be occaſionally placed upon the walls, to defend the bloſſom from froſt winds. He mentions a ſcreen of this kind, which, for 200 feet of wall fourteen feet high, including ſpars, cords, and pullies, coſt only fifteen guineas: This ſcreen is ſo conſtructed, that it can be hoiſted or lowered, by two men, in fifteen minutes.

The culture of pines forms the ſubject of the ninth chapter. In this the author enlarges conſiderably. We ſhall only take notice of a fact mentioned in the laſt ſection, which well deſerves the attention of every gardener who has occaſion to cultivate this plant. The white ſcale, or bug, is an inſect which infeſts the pine. Mr N. ſays, that, when he went to Wemyſs Caſtle, the whole ſtock of pines was ſo infected with this inſect, he had obtained permiſſion to throw them all out. By a proceſs, however, which he explains, but which it would occupy too much room to detail here, he cured them completely. For an account of this valuable experiment, we muſt refer our readers to the work itſelf.

Chap. 10. contains about two pages on the culture of ſtrawberries. The reaſon why the author is ſo ſhort here, is, becauſe he conſiders the ſubject to be generally underſtood.

A chapter on the Green-houſe follows next. The author does not enter into the management of particular plants. To have done

done ſo, indeed, in a ſatisfactory manner, would have ſwelled the performance to an extraordinary ſize. His obſervations are confined to the ſtructure, temperature, airing, and watering of the green-houſe; to the mould proper to be uſed; to potting and ſhifting the plants; and arranging the pots in their proper order.

The concluding chapter of this book contains ſome general remarks upon the conſtruction of hot-houſes, and explanation of ſix plates which accompany this part of the work. Theſe plates ſeem to be executed with ſufficient accuracy. We muſt obſerve, however, that letters or figures, referring to the different parts of the plates, would have rendered them much more intelligible. It may be doubted whether every reader, with the explanation that is given, will thoroughly underſtand them.

Book II. treats of the management of fruit-trees, in every ſituation where artificial heat is not employed. The firſt chapter of this book is divided into ſix ſections; on the ſituation and conſtruction of garden walls and eſpaliers; on the breadth, depth, and compoſition of the borders; on the different kinds of trees to be planted, according to the climate and aſpect; on training upon walls and eſpaliers; on training and pruning, and on thinning and gathering the fruit; and on the inſects which generally infeſt wall trees, with the methods of deſtroying them. On each of theſe heads the author deſcribes the moſt approved practice, and interſperſes a variety of uſeful obſervations upon the proper ſituation for garden grounds; the formation of gardens at firſt; the height and materials of the walls; the way to protect them from ſevere froſts, and ſimilar topics. No perſon who cultivates fruit trees, can fail to derive advantage from this part of the work.

Chap. 2. on the cultivation of orchards, is divided into eight ſections; on ſituations proper for orchards; on the ſoil; kinds of manure; kinds of trees; culture; pruning; admiſſion of cattle; ſmall fruits, ſuch as currants and gooſeberries, raſpberries and ſtrawberries.

'Orchards in this part of the united kingdom,' ſays Mr N. p. 283, 'are an object of trivial concern at preſent; for, except thoſe of Clydeſdale, ſome in the Carſe of Gowrie, and a few near Jedburgh, there are none of any note. It is certain, we in Scotland need not expect to cope with our ſiſter country in this reſpect; but it is equally certain, there is a poſſibility of imitating, and even nearly approaching her, in the productions of the orchard; or, at leaſt, ſo far as to anſwer the conſumpt of the country in good ſeaſons.' He proceeds to mention particularly the orchards of Clydeſdale, which, though neither extenſive,

ſive, nor, except one, kept in tolerable order, might be rendered highly profitable. He repreſents the whole banks of the river, from the Falls to Bothwell Caſtle, as very well ſuited to this purpoſe; and, at the ſame time, not very uſeful for any other. Conſiderable tracts are, in their preſent ſtate, perhaps, not worth 10s. *per* acre, which, in a few years, might be worth 50l. In proof of this, he mentions, that Mr Harvey of Brownlee lately planted about an acre and a half of a very ſteep bank, and formerly covered with brambles and briars, with fruit trees; and, though the greater part of them are not yet arrived at a full bearing ſtate, they have yielded him, for ſome years, from 70 to 100l. *per annum*. Such facts deſerve the attention of thoſe who have ground ſituated on the banks of rivers, where, though the ſoil may be excellent, it may be very difficult to employ it for agricultural purpoſes. In a climate like ours, however, it might not be a very ſafe ſpeculation to form orchards, where, with ordinary labour and expence, a good crop of corn could be expected.

Book III. on the management of the kitchen-garden, begins with an introduction, containing ſome general obſervations upon digging, fallowing, manuring, and weeding.

Chap. 1. is on the proper depth and ſituation of garden land—Chap. 2. on the nature and variety of garden land, with the means of improvement—Chap 3. on manures and their application. The author's obſervations in theſe chapters, if they do not poſſeſs novelty, are generally judicious and profitable.

Chap. 4. contains ſhort, but ſufficiently intelligible, directions for cultivating various kitchen vegetables.

Chap. 5. treats of ſallads and pot herbs; and Chap. 6. contains ſome remarks upon the rotation of crops. The time which we have already ſpent upon this volume, will not permit us to be more particular upon theſe chapters.

The culture of the potato has lately excited much attention, and ſome controverſy; Mr N. devotes a ſection of this laſt book to that important ſubject. His directions for planting and dreſſing this valuable root, are judicious: they preſent nothing new, however, and, therefore, need not be detailed. He takes notice of thoſe topics which have been frequently diſcuſſed, ſcooping, planting of ſhoots, and the curl. He is decidedly againſt planting of ſhoots, convinced, he ſays, by fair and frequent trials, of its inutility. To the ſcooping ſyſtem, he profeſſes himſelf friendly. We confeſs, that there is ſomething extremely agreeable in the idea of ſaving half the potato without injuring the ſeed; but, we muſt ſtill take the liberty to doubt, whether trials, ſufficiently varied, and ſufficiently extenſive, have been made to warrant the adopting

adopting of it as a general practice. The contradictory reports upon the ſubject, indeed, ſeem rather to authorize an oppoſite concluſion. That, in a very favourable ſoil and genial ſeaſon, ſcoops or even ſhoots might produce a crop, we ſhould not doubt; but, whether, when the plant has to contend with a ſtiff ſoil and nipping froſts, it would be as able to endure theſe hardſhips, as upon the old ſyſtem, we muſt yet queſtion. There ſeems, at any rate, to be ſufficient reaſon for withholding our aſſent from the new doctrines, until they are more completely eſtabliſhed by facts. We ſhall only add, that, however ſcarce or dear, potatoes may be, at any time, it would be no thrift to hazard the following crop, for the ſake of ſaving a little from the ſeed.

Mr N. mentions ſome of the cauſes commonly aſſigned for the curl, without directly adopting any of them, or giving a theory of his own upon the ſubject. The various opinions, upon this queſtion, only lead to the concluſion, that nothing is yet certainly eſtabliſhed. The diſcovery of this diſeaſe is much to be wiſhed; whoever makes it, will confer an important benefit upon ſociety.

Upon the whole, we have peruſed the work before us, with much ſatisfaction; and find no difficulty in recommending it to the attention of ſuch of our readers as are intereſted in the ſubjects which it illuſtrates. The author, everywhere, writes like a ſenſible man; and, what is not leſs important, like a man experimentally acquainted with the topics which he diſcuſſes. He very rarely indulges himſelf in theory: he does not ſay what ſhould be done, and what might be expected to follow; but what has been done, and what has followed. It is no ſmall recommendation of his book, in our opinion, that it is not ſo much to be accounted a ſyſtem, as a narration of facts, a journal of a very extenſive, and, it would ſeem, ſucceſsful practice. I.

Literary Intelligence.

Dr Hunter, of York, has a collection of *Georgical Eſſays*, conſiſting of four volumes octavo, in the preſs, which, we believe, will afford beneficial information to the lovers of rural ſcience. From the peruſal of a ſpecimen obligingly tranſmitted to us, we promiſe ourſelves much pleaſure in the courſe of reviewing this extenſive work; a taſk that will be undertaken as ſoon as the publication is announced.

The

The *Agricultural Survey of Peebles*, by the Reverend Mr FINDLATER at Newlands, will be delivered to subscribers on or about the first of November. We learn, with extreme satisfaction, that this work will be supported by a most ample and respectable subscription list; a striking proof of the public desire to reward men of merit, who devote their talents to the investigation of useful and important subjects.

A small publication, entitled, "*The Gentleman and Farmer's Pocket Companion and Assistant*, consisting of tables for finding the contents of any piece of land, by pacing, or by dimensions taken on the spot in ells; with various tables, of great use to every gentleman and farmer in Scotland," has lately been communicated to us. We are sorry that want of room prevents us from laying before our readers a detailed account of the objects embraced by the worthy author, (Mr AINSLIE, a landsurveyor of reputation and experience); but our conviction of the utility of the performance, induces us to recommend it to public notice in the most strenuous manner. Almost every branch of mensuration upon a farm (the precise extent of the farm excepted) may, with the assistance here given, be executed by a person of ordinary abilities; by which means, a great saving must necessarily arise to those concerned in extensive undertakings.

A similar reason (want of room) must be assigned for passing over (at least in this number) an ingenious pamphlet, *concerning the Hanging and Fastning of Gates and Wickets*, by THO. N. PARKER Esq. which has afforded us great satisfaction. The respectable author elucidates his descriptions by various well-executed plans, and gives estimates of the expence attending the construction and erection of the articles described. Superficial persons may deem such matters to be of small importance; but those acquainted with the charge of making and upholding gates and their appendages, will view the subject in a different light. This pamphlet, we are free to say, deserves the attention of every gentleman and farmer engaged in the management of inclosed pasture land.

Mr SMITH, landsurveyor and drainer, and member of the Bath Society, is publishing, by subscription, "Accurate delineations and descriptions of the natural order of the various strata that are found in different parts of England and Wales, with practical observations thereon." We shall be happy to see these matters treated in a liberal and scientific way, and theory thrown aside, to make room for facts. From our information, Mr S. is well qualified to do justice to such a subject, and capable of discharging the difficult office he has undertaken.

N.

BRANCH III.

AGRICULTURAL INTELLIGENCE.

THE Summer quarter has, on the whole, been uncommonly favourable for executing rural labour, though equally unpropitious to the improvement of the ſeveral crops. During the greateſt part of it, the weather has proved remarkably cold, attended by high boiſterous winds from the weſt and north-weſt points. On the 14th and 15th of May, there was a general ſnow ſtorm over the greateſt part of the iſland; and the froſt was ſo intenſe, as nearly to deſtroy fruit of all kinds; even many foreſt trees were ſtripped of their foliage, and young ſeedlings, in many places, killed altogether. The young clovers received a ſhock fatal to their future growth; and vegetation, in every inſtance, was conſiderably retarded. Fine genial rains prevailed in the firſt and ſecond weeks of June; but as they were followed by cold weather through the reſt of the month, which, with a few exceptions, has continued to this date, ſo much benefit was not derived as might otherwiſe have been expected. All the corn crops are much behind; at leaſt twenty days more ſo than laſt year, which neceſſarily will occaſion the harveſt to be late. Indeed, if warm ſunny weather does not ſoon arrive, both wheat and barley will be unproductive; the quantity and quality of theſe two grains being, in a great meaſure, regulated by the degree of heat at this ſeaſon.

The grain markets continue to be well ſupplied; and prices, on the whole, have not varied much from thoſe quoted in our laſt. Notwithſtanding the ſuppoſed plentifulneſs of laſt year's crop, a conſiderable importation of foreign grain ſtill continues, which corroborates what we have repeatedly inculcated, *viz.* That Britain, under exiſting circumſtances, does not yield a ſufficient quantity of proviſion for the ſupport of its inhabitants. To remedy this defect, no meaſures have as yet been taken, nor probably will any be reſorted to, till direful neceſſity compels a deviation from the ſyſtem ſo prepoſterouſly maintained.

We gave it as our opinion, in laſt Number, that a reduction in the price of butcher meat could not at that time be looked for; and the preſent ſtate of markets juſtifies the ideas which guided us. During the month of May, a ſtagnation of ſales prevailed, occaſioned

caſioned by the ſtoppage of contracts; a want of food, from the inclemency of the weather, to ſupport the ſtock in hand; and the unuſual exertion made to fatten every beaſt; apprehenſions being generally entertained that a great fall would inevitably follow. Theſe things, by conſequence, produced a temporary declenſion; but, the glut in the market being now gone, matters are returned to their former ſtate. Lean ſheep and lambs, indeed, bring higher prices than ever were known in Britain; and, if any profit ſhall be gained by the feeders, prices muſt ſtill advance. Beſides, the general failure of the paſtures will cauſe a ſhort ſupply of fat beaſts at the end of the ſeaſon, while the increaſed annual demand for turnip ſtock may contribute to augment the ſcarcity.

We are at all times well diſpoſed to diſſeminate information upon buſineſs connected with the general plan of this work; conſequently, would, with cheerfulneſs, have given a place to the intelligence ſent from *Warwick*, reſpecting an intended ſale of a valuable ſtock of ſheep, in that diſtrict, provided the letter tranſmitted had reached us in time. We mention the matter here, ſo as our reſpectable correſpondent may not ſuppoſe that his communication was neglected. Indeed, he had not attended, that our day of publication was poſterior to the ſale of the ſtock announced.

Our readers will obſerve a circumſtantial detail of the late worthy Duke of Bedford's farms, in this Number, obligingly communicated by an accurate Scots farmer, who, at our requeſt, undertook the trouble of examining matters upon the ſpot. Want of room occaſions us to omit the account of this year's ſheep-ſhearing, which, though highly intereſting, could not poſſibly yield equal ſatisfaction to the viſitors, as when guided and directed by the exalted perſonage now no more. It is with regret we learn that the eſtabliſhment is to be laid aſide; but we hope the pattern given, for ſeveral years, will not be forgotten in the adjoining diſtrict, as well as prove beneficial to the numerous amateurs of rural ſcience who flocked to Woburn from every quarter of the iſland.

Another public eſtabliſhment, which promiſed, if ſuitably adminiſtered, to prove highly advantageous to agriculture, is alſo recently given up; we mean, the Experimental Farming Society, patronized by the active and patriotic Sir John Sinclair, Bart. Sir John, in a circular letter to the ſubſcribers, aſſigns as a reaſon for renouncing the deſign, that, notwithſtanding every poſſible exertion had been made, a charter could not be procured, without which he could not recommend the inſtitution to his friends. He therefore hopes, that the ſubſcribers will

have no objection to transfer their ſubſcriptions to the BRITISH FISHERY SOCIETY; but we have not heard whether ſuch a junction will be generally acceded to. In our opinion it will not, the object being altogether different.

As the national character of Scotſmen has been much enhanced by the diffuſion of knowledge among the lower ranks, proceeding from the eaſy terms on which education is gained in this country, it gave us great pleaſure to learn, that a bill was brought into the laſt Parliament, for augmenting the ſalaries of the parochial teachers; a moſt uſeful claſs of men, who, from the depretiation of money, have, for many years back, been ſtruggling with the ſevereſt difficulties. The fact is, unleſs ſalaries are raiſed, education muſt be loſt to the lower ranks, and the office fall into the hands of people totally unfit for diſcharging its duties. The bill, we underſtand, is poſtponed to next year, ſo as it may be conſidered by the landed intereſt. We truſt, for the honour and welfare of Scotland, it will not be oppoſed; at leaſt, that more cogent reaſons will be offered for reſiſting the meaſure, than thoſe given in 1784, when a ſimilar bill was under conſideration. We remember, at that time, of accidentally attending the meeting of an eaſtern county, who took a lead in that oppoſition, and heard reaſons aſſigned againſt the augmentation, which a ſchool-boy might have confuted. An augmentation, which in few caſes would have exceeded THREE FARTHINGS in the pound of real rent, was repreſented as threatening deſtruction to the landed property of the country! Indeed, the *tawſe* ſeemed neceſſary upon that occaſion; and in few inſtances have theſe moſt uſeful inſtructors been more deſervedly applied.

At the deſire of a friend, we mention, in this place, that a very deſireable farm, of 400 Engliſh acres of land, contiguous to a bay on the north coaſt of Ireland, and within a few hours ſail of Campbelton and Greenock, is to be ſet by a gentleman who cannot conveniently attend to the management thereof himſelf. The gentleman however is willing to take a ſhare in the concern, or to arrange matters upon the moſt liberal principles. As the land is of excellent quality, the greater part of it rich clay ſoil, yielding heavy crops of wheat and beans, well provided with limeſtone, ſhell-ſand, and ſea-weed, it muſt be an object to many of our readers. From the increaſed ſize of farms in this country, it is every day more and more difficult for thoſe out of place to procure a new poſſeſſion. Hence, the great increaſe of rents. Ireland preſents a new field; and, in many reſpects, a good one for thoſe who cannot be accommodated at home. Some additional circumſtances render this caſe more deſerving

of

of general notice, than commonly occur. The farm is ſituated in a part of the country, where there are no Catholics, the inhabitants being moſtly of Scotiſh deſcent: Alſo, from being in the gentleman's own hand, there are no tenants to turn out, which ſometimes proves a diſagreeable affair. Mr Conſtable, the publiſher of this Magazine, will communicate any other particulars that may be neceſſary.

July 22. N.

EXTRACTS FROM PRIVATE CORRESPONDENCE.

SCOTLAND.

Letter from a Gentleman in Dumfries-ſhire, July 12.

'We had a dry and cold Spring, with nipping froſts at different times, which greatly retarded vegetation. Our crops, in general, notwithſtanding theſe obſtructions, look well; though the harveſt, undoubtedly, will be later than in an average of ſeaſons. For ſome days paſt, the weather has been ſhowery, and, if heat ſucceeds, matters may ſtill get into a forwarder ſtate, than preſent appearances warrant us to expect. The experience gained in the courſe of the preceding years, convinces us, that no dependence can be placed on the moſt pleaſant proſpects; and that circumſtances, which make the farmer's heart rejoice in the firſt inſtance, often make it ache before his operations are finally concluded. In other words, we cannot reckon upon a plentiful crop, till it is harveſted and houſed.

The ſeverity of the May froſts, injured not only the fruit trees, but alſo the young plantations of this diſtrict. Much of our ſown graſs was likewiſe hurt thereby; conſequently, hay has turned out a ſcanty crop. Servants wages have roſe higher this ſeaſon than cuſtomary, and, added to the great increaſe of rents, will cut up the ſmall farmers altogether.'

Fife Quarterly Report.

The ſtate of the different crops in this county, gives the proſpect of a plentiful harveſt; although every one of them is hurt, leſs or more, by the cold froſty nights which continued even to the beginning of July.

Oats are univerſally good, and have everywhere the appearance of a heavy, thick, and abundant crop on all ſoils; light and heavy, dry and wet.

Wheat, in general, is a fine crop; but has failed, or at leaſt is hurt by the froſt, on ſome farms of ſoft land.

Barley, on the whole, offers to be a bulky crop.

Peas, exceeding good.

Beans, in the higher lands, not equal to the peas; but along the ſea coaſt, and on rich deep land are very fine.

Potatoes. Of theſe an immenſe quantity is planted, and they promiſe well for a good crop. Although thoſe early planted, after being up, had the firſt ſhoots deſtroyed by the froſt, and even at this time do not fill the ground ſo well as thoſe later planted, yet they have recovered greatly, and offer ſtill to be good.

It is very obſervable, that where the ſeed-cuts were the ſame, thoſe early planted, and expoſed to the froſt, are much infected with the curl. The late planted have eſcaped the curl entirely, and were not hurt by the froſt. Future obſervation is requiſite, however, before it can be aſſerted, that the firſt ſhoot, being killed by froſt, will uniformly cauſe the crop to be infected with the curl; though it appears probable to the author of this report, from what has happened this ſeaſon. Where the ſame ſeed-cuts were planted, part early, and part late, the ſhoots of the latter were untouched by froſt, and not one curled plant to be ſeen in ſome acres. Species, the Tartar, from a crop in which were no curl laſt year, and completely ripened, fine mealy quality, and well preſerved through Winter.

Turnip. The ſeaſon ſeems to have favoured, firſt, the preparation of the ground, and next, the ſpringing of the ſeed; and this crop offers fair for excellence, having nowhere failed.

Flax. This plant ſuffered, firſt, by continued dry weather, and, next, by the froſt. The late rains have partly recovered it; but it offers, on the whole, to be an indifferent crop.

Clover and Rye-graſs Hay crop. Very light everywhere, and late at ſame time, as no hay is yet cut in the county, (12th July). The average weight per acre is not eſtimated above 150 ſtone. The hay crop, therefore, will pay very poorly, as nothing but ſome unforeſeen calamity (which Heaven avert!), can make other fodder ſo ſcarce as to make hay fetch a price adequate to its natural value.

Cattle, and all live ſtock, continue to bring great prices.

One good crop (even when preceded by two years in which the crops failed to ſuch a degree as to bring not only dearth, but even to threaten famine) has brought plenty into the country, and cheapneſs immediately followed, even before peace was heard of. The ſcarcity was real, and dearth neceſſarily enſued. All the monopolizers in the kingdom were unable, after laſt crop, to keep up the price of grain, even to half its former rate; and no legiſlative regulation was found able to reduce the price, till ſmiling plenty came. Some ſuperſtitious old people firmly believe, that a witch-wife has drawn the tether and ſtolen the milk from their cows, when milk and butter fail to come within a fourth of the ordinary quantity. It has been obſerved, that theſe witches never fail to caſt their cantraips in dry Summers, intercepting both dew and rain; and then the milk ſticks to the thirſty tether, and the witch carries

carries all with her. Monopolizers, too, are in compact with the devil; when he blasts the crop, they pull the tether. Let us apply to One, more mighty than either, to avert the first evil, and let them pull away, no harm will follow. The high price of cattle is easily accounted for. Two years scarcity of fodder occasioned every animal fit for food to be slaughtered; and though very lean, in dearth they were eat up. No horses, but those of value, would pay for hay at 18d. per stone; and thousands went to the hounds. One good crop of grain may equal the demand; but the calf must be reared to an ox, and the foal to a horse, a business of years, before the thinly supplied market can be filled up. The same work remains for the horse; and the same eaters of butcher-meat, or more, must apply to a market where scarcity yet prevails, and where the supply does not equal the demand. High prices are therefore an unavoidable consequence. Overstock the market with good cattle, and you may defy all the monopolizers in the world to keep up the price of beef, any more than of corn, when in abundance. *12th July.*

Lanarkshire Quarterly Report.

The seed work was concluded in good time, and the grain brairded in a promising way. The uncommon severe frosts in the months of May and June, have, however, been prejudicial to the growing crops in many places; and their effects were visible on trees of various kinds, such as, beech, larix, &c. The orchards on the Clyde suffered most severely, the crop of fruit being almost completely destroyed.

Wheat continues to promise well, though, in some places, there is a complaint that the head appears short. The produce, at any rate, in this district, must be inferior to that of former years, as there is less sown. Oats are a good crop in general, and promise well in all parts of the county. Peas and beans have both been much hurt by the frost. Peas have recovered very little, and appear to be a poor crop; but the beans have improved considerably by the late soft weather. Potatoes came away very slowly, and are still much behind, (as the crops in general are), though the planting season was favourable. The quantity planted is allowed to be considerably short of last season, but perhaps is equal to that of ordinary years. The turnip seed time was favourable, and the braird is good. Though the hay promised well in the Spring, it has suffered very much from the frost, particularly the rye-grass, which makes it probable that good rye-grass seed will be scarce; and although the late rains have improved the crop much beyond what it once appeared to be, particularly the clover, yet it will be much less than was expected in Spring.—13. *July.*

Rossshire Quarterly Report.

The Spring was very favourable for getting every kind of seed put into the ground in proper time, and in good condition; but the Summer, hitherto, has proved very cold and wet; so that the crops, although

they have the appearance of abundance, are very late; and if the ſame weather continue much longer, the grain, in high ſituations, will not ripen. At all events, this diſtrict muſt now run the riſks attendant upon a late harveſt.

Turnips, owing to the chilling rains, are in many places looking ſickly; and Summer-fallows on clay, for theſe laſt ten days, cannot be either ploughed or harrowed, being a perfect mire.

Oat meal ſells from 18s. to 20s. per nine ſtones; and Oats at 18s. per five firlots. Butcher meat 7d. per lb. Dutch weight. Lean ſtock of all kinds very high. Wedders, from 27s. to 29s.; and black ewes, from 14s. to 16s. a head.

Some of the hills in this diſtrict were this morning entirely covered with ſnow.——*July 13th.*

Aberdeenſhire Quarterly Report, No. 1.

The weather, during the Spring months, was not at all friendly to vegetation; and the cold and dry weather continued ſo long, that we will in general have but a poor hay crop in this county. The rains, however, came in time to ſave the corns, though ſome fields were much injured. The oats now look very well, and, contrary to what uſually happens, the early ſown barley has the appearance of having moſt ſtraw. Our late barley ſuffered from a ſtorm in May. The turnips in general have riſen very well; though, in ſome places, the ſeed was hurt by too much rain; and, from the quantity of old corn and hay, which is unuſually great, it is not ſuppoſed that clover hay will be dear, though rye-graſs ſeeds will be ſcarce, and probably fetch a high price. Black cattle continue to have a quick ſale; and the young cattle for winterings, are ſold at nearly a ſhilling per pound. It is not to be ſuppoſed that they will be a profitable article, unleſs the price next Spring is very high. Horſes alſo fetch a high price; at leaſt 50 *per cent.* more than they were fifteen months ago. Sheep, once plentiful in this county, are now ſcarce, and have riſen to more than double the prices they brought ten years ago. From the great demand for labour for making the canal to Inverury, and different turnpike roads in the county, as well as the new ſtreets in Aberdeen, the wages of a good labourer are generally two ſhillings a day, which makes the hoeing of turnips and other farm work very expenſive; but is a proof of the proſperity of the country.——*July 13th.*

Aberdeenſhire Quarterly Report, No. 2.

During the latter part of April, and all the month of May, we experienced the rigours of Winter. The bloſſom was froſted on the fruit trees and buſhes; and many of the young foreſt trees were killed in their upper branches. In June, and what is paſt of July, we have had frequent ſhowers, and milder weather. The crop, which was laid down in excellent order, with freſh ſtrong grain for ſeed, has reſiſted the bad weather more than ordinary; it is ſtill thick and full in the ground;

ground; promiſes to be ſufficiently bulky and productive, if dry warm weather ſet in ſoon; otherwiſe, a great proportion of it will be rather late in ripening, and thereby may run ſome riſk in harveſting.

Hay is generally a very light crop; little of it is yet cut down; but, being ſo much ſtinted, no kind of weather could recover it to any thing like an average, eſpecially where the clover did not preponderate moſt in the field. Potatoes are far behind laſt year's growth. Both fallows and turnip land have wrought exceedingly well; the turnip crop has got a fine ſeaſon; the plants have inſtantly come up; but the weather has hitherto been rather rainy, for their advancing quickly in this their feeble ſtate.

Since the additional malt-duty took place, beer ſcarcely finds a market: Should this continue to be the caſe throughout this year, it is probable there will be much leſs of it ſown in future. Paſture graſs is excellent, and in great plenty. Graſs parks have not experienced the fall here, as in the ſouthward; being let very little under their former value. Both cattle and ſheep, of every denomination, find a ready market at very high prices; and thoſe of the inferior kinds are ſtill higher in proportion than what the ſuperior kinds (that is, cattle of ſize and condition) are.—*July 14th.*

Argyleſhire Quarterly Report.

The ſeed, having been put moſtly in a dry bed, ſuffered leſs than might be apprehended, from the froſt, ſnow, and hail of the firſt three weeks of May. Ever ſince, the weather has been in general cold and wet, with very little ſunſhine; but the crop has, notwithſtanding, a very good appearance; and, though far ſhort of laſt year's, promiſes at leaſt to be an ordinary crop, if the weather for filling and ripening (on which all now depends) ſhall prove favourable. The backwardneſs of the Summer will, however, no doubt, retard the harveſt. At preſent, every thing appears to be near a month later, than at this time laſt year.

Hay crops, which are not yet ſo commonly adopted into the huſbandry of this county as they ought, have turned out well, except where the ground was wet. Some parcels have been ſold at 6d. per ſtone of 24 lib. Turnip is ſtill leſs raiſed than hay. In ſome fields, after the ſeed had ſprung more than an inch, the plants have aſſumed a ſickly appearance; owing, it is ſuppoſed, to the uncommonly cold and wet weather they have met with in their tender ſtate.

Meal is at ſo reaſonable a rate, that even the poor have no cauſe to complain. It has been for ſome time at 1s. the peck of 8 lb., or 15d. the 10 lb.; which, within theſe few days, has fallen to 14½d. Butter, 1s.; Cheeſe, 5d. the lb. Engliſh. Beef and mutton, 6d. do. The price of black cattle and ſheep ſtill keep up; and, from the increaſing demand, may probably riſe higher in the courſe of the ſeaſon, as the uncommon demand laſt year had drained the country of a greater number than it could well ſpare. Few herrings have as yet appeared on our coaſts; and

and the Buſs adventurers for the North-country fiſhings are only ſetting out.

Much of this county conſiſts of paſture lands. The coldneſs of the ſeaſon had long retarded the vegetation; but, for ſome time paſt, the grazings have been remarkably good, and the cattle are likely to be in excellent order, for appearing to advantage in the markets during Autumn.——*15th July.*

Letter from a Gentleman at Alloa, July 16th.

'I hope that you will permit me to make uſe of your valuable work, for communicating to the public a diſcovery, that does honour to the induſtry and ſagacity of a worthy laborious man of this place: A diſcovery, that the Patriotic Society, inſtituted in London, for the encouragement of arts, manufactures, and commerce, thought of ſuch importance to the kingdom, as made them offer, in the year 1798, a premium to the perſon who ſhould diſcover a quarry of ſtone, fit for the purpoſe of millſtones for grinding wheat, and in all reſpects equal to that known by the name of French burr—the gold medal, or one hundred pounds.

Though two claimants had already gained the premium, the Society, this year, moſt handſomely beſtowed another on James Brownhill, miller at Alloa Mills, who, about two years ago, (when the late unfortunate war had rendered the getting of French burr extremely difficult), as he was paſſing by the great baſaltic rock of the Abbey Craig, near Stirling, examined the texture of ſeveral maſſes of the ſtones; and found one ſpecies, which appeared to him fit for the grinding of wheat, and brought home a ſample of them, which he ſhowed to Mr Alexander Bald, agent of the Alloa Mills, who agreed to make trial of a pair. They were built under the direction of James Brownhill, in the ſame manner as the French burr; and, on their being put to work, they gave ſuch ſatisfaction to the cuſtomers of the mills, as induced the Alloa Mill Company to have another pair built, and totally lay aſide the French burr millſtones.

The French burr ſtones are ſo porous, as to make it neceſſary to fill up the cavities with a preparation of alum: This conſiderable expence is ſaved by the uniform texture of the baſaltes; and their ſuperior excellence is ſo apparent, that upwards of 60 pair are now at work in ſeveral parts of the kingdom, and the demand for them is daily increaſing —no leſs than ten pair are now ſending off to Leeds.

The baſaltes millſtones are not only excellent for manufacturing of flour, but for all kind of griſt. The diſtillers give them a decided preference, and they grind oats in a very complete ſtyle, as the meal is returned quite free of ſand, which was a great *deſideratum* for thoſe places where oat bread is in uſe.

James Brownhill, the diſcoverer of this uſe of the baſaltes, builds millſtones of all ſizes upon moderate terms, and will be careful, from his experience

experience as a miller, to build them of ſuch a grain as will beſt ſuit the purpoſes for which they are ordered.

Orders addreſſed to James Brownhill, miller at Alloa-Mills, will be carefully attended to, and ſpeedily executed.

I flatter myſelf, that your readers will think the intelligence of ſuch a diſcovery well worthy of a place in a work dedicated to the uſe of the moſt reſpectable of all artiſts—the Farmers.

Morayſhire Quarterly Report.

Since Spring ſeed-time commenced, the weather has been much in extremes—cold, dry, now too rainy; and corn of all ſorts, even in this early diſtrict, muſt be late of ripening. Wheat promiſes to be an average crop on all ſoils; the ſame may be ſaid of oats, except on very low, wet land—on ſuch they are deficient. Barley, on rich croft land about towns and villages, is middling; but extremely deficient in all other ſoils and ſituations, and, in all probability, will not exceed 4½ bolls per acre. Hay, though mended beyond expectation, is ſtill an indifferent crop. Paſture is abundant. Potatoes look well, and likewiſe turnips, ſo far as we can judge of the latter in their infant ſtate.

Lean cattle and ſheep are at higher prices than, probably, were ever ſeen in the North; but ſales of the former are rather limited; conſequently, lower rates may be expected. Beef and mutton is 7d. per Dutch lb. in Elgin; oatmeal 13½d. per 9 lb.; wheat 35s. per boll of 88 Scotiſh pints; barley dull, at 20s. to 22s. 6d. per 4 firlots; oats equally ſo, at 18s. per 5 firlots, of 52 Scotiſh pints each.——*July 17th.*

Berwickſhire Quarterly Report.

Though the weather during this quarter has been highly favourable to cultivation, it has been greatly deficient in warmth; from the 13th to the 19th of May we had intenſe froſt, with ſnow; on the 15th, at ſun-riſe, the thermometer ſtood 10 degrees below the freezing point: Fruit of every kind experienced almoſt a total deſtruction, and vegetation got a ſevere check; even ſo late as the 15th of July, we had hoar-froſt on the Lammermuir hills. Paſturage continued very ſcanty till the rains in June, ſince which, new graſs fields have been looking pretty freſh, but old paſtures have hitherto done very little. Hay-harveſt is juſt commencing, the crop in general will be light.

The wheat crop has at preſent a moſt promiſing appearance, particularly the Winter grain; barley, in ſome caſes, made a partial braird, in conſequence of the drought, but in general the crop looks well; oats wear a favourable aſpect; and beans are luxuriant and promiſing; but peaſe, though luxuriant, were late in getting into bloom.

The ſeaſon was exceedingly favourable to the preparation of turnip fallows; and the ſowing, which commenced in the beginning of June, was followed by a fine equal braird; but the recent ſhowers have rather checked the growth of the young plants by a ſuperabundance of moiſture,

moiſture, which has alſo prevented the hoe from being applied with proper effect. The early ſown roota bagas are all hoed and looking well. Clover ſeeds have made a fine braird, and potatoes are a thriving crop.

From a rumour having been circulated, that wool was to experience a very conſiderable advance, the market continued for ſome time quite uncertain; but the merchants having univerſally declared their inability to afford the advance expected, a good many ſales have been made at 24s. 6d. and 25s. per ſtone of 24 lb. Engliſh; being an advance of from 2 to 4 *per cent.* above laſt year. The market for lean cattle flagged a good deal towards the end of May, in conſequence of the drought; but ſince the rains, it has again revived. Sheep have all along maintained their price, and, upon the whole, ſeem rather inclined to advance. The fat markets have declined ſince Whitſunday; good beef is 7d. and 7½d., and mutton 7d. per lb. Dutch.—*July* 17.

Letter from a Farmer in Roxburghſhire, July 17.

"We have the proſpect of a late harveſt; and I am ſorry to ſay, that our crops cannot be eſtimated as equal to an average. The Winter wheats are middling; thoſe ſown in Spring very thin. Barley bad. Oats by no means bulky, and Beans far from being good. Turnips, at the outſet, promiſed well, but the late cold rains are too much for them. The hay crop is of late wonderfully improved; but the old graſs lands may be ſaid to be only beginning to grow. The demand for ſtock of all kinds is great, and the prices for lean ſtock almoſt beyond belief; thoſe for fat are alſo advancing. The potato crop is much curled. Grain appears on the riſe with us, and the demand ſeems now equal to what remains on hand. Barley is faſt bought up by the brewers, and they have no objection that it ſhall continue in the ſtack for a while.

"I had a pleaſant jaunt to the South this ſeaſon, and was highly delighted with the ſhows of tups and cattle that I attended. The crops of grain, which I ſaw, were much inferior to thoſe on the ground laſt year, when I was South upon ſimilar buſineſs."

Inverneſſhire Quarterly Report.

From the 15th to the 20th of May, we had a moſt intenſe froſt, with frequent ſhowers of ſnow; ſince then, the weather has been generally cold and rainy; of courſe, all kind of crops are extremely backward, and, at leaſt, a month later than what they were laſt year. We had an early and vigorous braird of turnips; but, owing to the coldneſs and wetneſs of the weather, they are not coming forward to expectation. Potatoes have a worſe appearance than uſual; and, I apprehend, this uſeful, I might have ſaid neceſſary root, will be very unproductive this ſeaſon. Hay is an exceeding ſcanty crop. Black cattle of all ages continue to bring moſt exorbitant prices; and ſheep are

ſtill

ſtill at higher rates; beſt Highland wedders ſelling from 28s. to 30s. *per* head.——*July* 19*th.*

Eaſt-Lothian Quarterly Report.

During the current quarter, the weather has generally been ſingularly cold for the ſeaſon of the year; and, what was ſtill more ſurpriſing, the wind has moſtly blown from the weſterly points, which, in ordinary years, is uſually accompanied with genial weather. The dryneſs of the ground at the time, prevented the May froſts from doing ſo much injury to the growing crops as was apprehended. If wetneſs had prevailed, the conſequences would have been dreadful; as it was, the young clovers were evidently damaged, garden growth of all kinds almoſt deſtroyed, and the forward wheats were ſuppoſed to be conſiderably affected.

In the greateſt part of the lower diſtrict, the crop is of a full average bulk; but, reſpecting its real value, no opinion can as yet be juſtly pronounced. The cold drought affected the eaſtern diſtrict with ſeverity; and in few ſeaſons have we witneſſed the ſeveral crops there ſo much ſtinted. Over the whole county, the harveſt will be late; but in the upland parts, the conſequences will be particularly felt.

Generally ſpeaking, the Winter wheats are full on the ground, though the ears are far from being ſo large as in ſome ſeaſons; many of them ruffled by the tempeſtuous winds which prevailed at the time they quitted the ſhort blade; and the oaker, or ruſt, has appeared to a conſiderable extent. The ſpring ſown fields of this grain will not be luxuriant; but this ſeldom happens, unleſs the weather in the beginning of Summer proves particularly favourable. Barley is a variable crop; an imperfect braird was got at the outſet, and the after weather was not ſuch as to remedy the original defect. Oats are a cloſe, in ſome inſtances, a bulky crop; but, except thoſe of the Poland, Frieſland, Potato and Red varieties, they will be remarkably behind in harveſting, few of the late ſorts being yet fully eared. Beans made a good braird, and, on deep loams, kept their footing till the June rains arrived. The dryneſs of the weather permitted full work being given to them in every ſituation: at preſent, this crop promiſes well. Peas are tolerable, but exceſſively late; few of them being fully bloſſomed. Potatoes are rather below a medium, and curled plants very numerous. The coldneſs of the weather appeared to hurt this eſculent ſeverely. A great breadth of turnips was ſown, and almoſt every field brairded well, but their after growth has not been rapid. The hay crop is light; perhaps the average of the county will not exceed 100 ſtones *per* acre. Paſture graſs has continued very bare; it was eat up in the early part of the ſeaſon; and a great growth cannot, at this advanced period, be expected.

Markets for grain have remained pretty ſteady; the demand, in general, keeping pace with the quantity preſented. A good deal ſtill remains with the farmers, but ſeldom leſs in the granaries of the dealers; and the laſt circumſtance would be ſeverely felt, in the event of harveſt being

being protracted by bad weather. A very large proportion of the laſt crop was expoſed in bulk; the wholeſale merchants, ſince 1799, not having made their uſual purchaſes at the ſea-ports.

Fat cattle and ſheep are rather on the advance; and, of late, lean ſheep bear higher prices than hitherto known. Lambs have regularly ſold well; any difference being, that they roſe in price as the ſeaſon advanced, inſtead of becoming a drug, when thoſe from the hills appeared at market.

On the whole, the crop of this county depends greatly upon future circumſtances. If we are favoured with mild genial weather till the ſeaſon of harveſt arrives, it might certainly be ranked as fully equal to an average of years; but if cold boiſterous weather continues, or if wetneſs was to ſet in, and remain for any conſiderable length of time, the different grains would be inferior in quality, and unproductive as to quantity; all the evils attendant on a late harveſt would be felt; and theſe, under preſent circumſtances, the country has great cauſe to dread.——*July* 22.

Letter from Carnwath, July 19.

'Our early oats are only ſhowing the ear; and all kinds of grain are at leaſt three weeks later than laſt ſeaſon. Potatoes appear to be a very deficient crop. Turnips look well, and, upon dry lands, are generally hoed and ſingled.

'Cattle ſtill continue high in price, more particularly lean ones, and milch cows. Sheep of all deſcriptions are alſo on the advance. At Biggar fair, laſt Thurſday, there was a ſmall ſhow of lambs; and a number of purchaſers from the north country went away unſerved.'

Letter from Glaſgow, 20th July.

'Our paſture and cut graſs have been much hurt by the cold dry weather experienced ſince the beginning of Summer. The former has, however, revived a little ſince the commencement of the late rains; but the latter, by every appearance, will turn out but a light crop.

'Wheat is now in the ear, very healthy, but, in general, thin upon the ground, and, it is thought, will be three or four weeks later than laſt year. Oats have a fine appearance; but will be late, unleſs we have dry and warm weather to bring them forward. Beans and peas look very well; if the dry weather continues, we may expect a good crop of that grain.

'Potatoes have been much kept back by the ſevere froſt we had in May; they are now, however, looking tolerably well, with very little appearance of curl amongſt them. The quantity planted this ſeaſon is far ſhort of what was laſt year, and the crop will be conſiderably later.

'Our imports of grain, this Summer, have been chiefly from Ireland and America. From the former, we have had a very great quantity of oats, ſay about 15,000 bolls, about 200 tons of meal, with a few hundred

dred bolls of wheat and barley. From the latter, about 16,000 bolls of wheat, with a conſiderable quantity of flour: The greateſt part of the flour, with a part of the wheat, have ſince been exported. We ſtill look for a conſiderable quantity more of both wheat and oats from theſe countries before Harveſt. Annexed, you have the preſent ſtate of our markets.

State of Glaſgow Markets, July 20th.

American Wheat	32s. to 34s.	*p.* boll of 240 lb. Engliſh.
Dantzic ditto	34s. to 35s.	do. Linlithgow meaſure.
Britiſh ditto	32s. to 37s.	do. do. do.
Ditto Barley	21s. to 23s.	do. Stirling do.
Iriſh ditto	20s. to 22s.	do. Renfrew do.
Ditto Oats	16s. to 17s. 6d.	do. of 252 lb. to 264.
Britiſh ditto	14s. to 15s.	do. Renfrew meaſure.
Ditto Beans	17s. to 18s.	do. Stirling do.
Ditto Grey Peas	16s. to 17s.	do. do. do.

Old Hay	8d. to 10d.	*p.* ſtone, Tron weight.
Straw	3d. to 4d.	do. do. do.
Beef	8d. to 10d.	lb. do. do.
Mutton	8d. to 10d.	do. do. do.
Lamb	7d. to 8d.	do. do. do.

Wigtonſhire Quarterly Report.

Scarcely does any body remember to have felt ſuch cold weather in the Summer quarter, as we have experienced for three months paſt, in this part of the country. About the beginning of laſt month, cold northerly winds prevailed; nay, even accompanied with hard froſts, which hurt vegetation very much, particularly on light and moſſy ſoils: the rye-graſs thereon withered away; and grain crops and potatoes ſuffered a conſiderable check; but now theſe are pretty well recovered. Indeed, the appearance of our grain crops, in general, is promiſing as to bulk. In many ſituations they are rather too luxuriant; ſo that, if dry weather does not ſet in, and continue, ſuch will undoubtedly lodge, and render the produce of an inferior quality. On deep ſoils, and where the new huſbandry is eſtabliſhed, the hay crops, which were not ſhot out before the froſt, are pretty good, and the harveſting going forward.

Cattle, horſes, and ſheep, ſtill continue high in price, but grain very low indeed; bear 2s. 3d. and oats 1s. 8d. per Wincheſter buſhel. Wheat generally ſold off. The late rains kept back the turnip ſeed, but it is now got concluded; and, if warm weather would ſet in, we have reaſon to expect this crop to be good, as the vegetation of this valuable root continues longer here than in the northern counties. All our crops appear to be at leaſt three weeks later than uſual, which will, at any rate, make the harveſt more precarious.——*19th July.*

Letter

Letter from a Gentleman near Perth, 19th July.

'*Wheat*, on the whole, is a pretty fair crop, although, at leaſt, four or five weeks later than laſt year. In certain ſituations, ſome of the moſt forward fields ſuffered conſiderably by the ſevere froſts in the end of May. Such fields have, indeed, in ſome degree, recovered their former vigour; but, I heſitate not to ſay, they will fall much ſhort of the quantity of grain which might otherwiſe have been expected. The middle, and later ſown fields, ſuſtained little injury, compared with the former; and now thoſe of the middle claſs promiſe well. Still much will depend on the coming weather with regard to the backward wheats, as many fields are not, even at this date, fully ſhot into the ear.

'*Oats* ſtand cloſe on the ground in general, but ſhow little appearance of getting to the ſtrength of laſt year's crop. Many fields upon the weaker ſoils have never recovered the nipping froſts of May. At ſame time, on the whole, this ſpecies of crop is not ſo backward as the wheat.

'*Barley*. The early ſowings look well, notwithſtanding the ſevere checks they received in appearing above ground. The middle part of the crop does not look quite ſo favourable; and, as yet, no correct opinion can be formed of the late barleys: All that may be ſaid is, the plants wear a good lively green; but, in all probability, the harveſting will be very backward indeed; and, of courſe, much leſs dependence on a good crop, than the ſpring, at one time, gave cauſe to expect.

Peas make only a very indifferent appearance.

Graſs fields, of every deſcription, have kept very much back during the whole of this ſeaſon. Indeed, in April, and the firſt weeks of May, the plants ſtood cloſe, and graſs then promiſed well; but, about the middle, and towards the end of May, it met ſuch a check as it has never fully recovered. It will be ſome days yet before hay harveſt become general; and the crop, to all appearance, will be a light one.

'*Potatoes* are in a thriving ſtate, and fewer curled plants than laſt year.

'*Turnips* never had a better ſeaſon in their firſt ſtage. The fine dropping weather, for ſome weeks paſt, has brought on a fine braird. Thinning has commenced with many, and the plants ſtand beautifully regular. No occaſion this year for any precaution to prevent the ravages of the fly. I doubt not but ſowing radiſh ſeed along with the turnips may afford a palatable food for the fly to live on, and the turnip plants thereby ſtand uninjured; at the ſame time, I ſhould rather prefer uſing ſome ſuch thing as would be noxious to the inſect, and baniſh it from the field. On glancing over the Bath Reports, I obſerve the leaves of alder recommended to produce that effect; and I underſtand, a neighbour of mine, laſt year, cauſed branches of this ſhrub (commonly called bower tree) be drawn along his turnip field, as a preventative: and no fly appeared on this field, while other fields ſuffered greatly. For my own part, I have found, that ſowing turnips pretty thick, inſures

ſures a crop; although, in ſome ſeaſons, mine have been much eat down, and retarded by the fly.

'The *lint crop* looks very inferior this ſeaſon, compared with what is ordinary in this country; which failure ariſes from two cauſes; firſt, the ſevere froſty weather, above noticed, cutting off the early ſowings; and, next, after the ſevere froſts were gone, many people ventured to ſow old ſeed, ſaid to be Dutch of crop 1800, one half of which never brairded, and the far greater part of ſuch plants as came up, have never taken to any lively growth; of courſe, this part of the crop will prove of little value, to the loſs of many individuals, and alſo the evident injury of the country at large. I truſt, this cauſe of failure will make people more cautious in future, in riſking old ſeed; and that the public guardians will direct a cloſer attention to all deſcriptions of lintſeed offered for ſale during the ſowing ſeaſon.

'Markets for live ſtock have kept high throughout this ſeaſon; and, from the reaſons hinted at in one of your former Magazines, it is likely prices, of black cattle in particular, will continue high for ſome time at leaſt.

'Our grain market, in this quarter, is nearly on a level with that of Haddington. Some weeks the prices may be rather under, although the difference has been immaterial for ſome time.'

Letter from a Gentleman in the Diſtrict of Carrick, Ayrſhire, July 22.

'The ſtate of the weather with us, hath been moſt unfavourable ſince Candlemas. The whole of the Spring months were generally wet. The dry weather did not come on till towards the end of April, when we had about four weeks of ſunſhine, one of which was uncommonly mild and warm; the reſt were ſo cold, that we had hard froſt almoſt every night, and ſometimes ſo ſtrong, that in the morning, the ice was near a quarter of an inch thick. Towards the end of May, the rain came on, which has continued with very little intermiſſion ever ſince; and, what is ſtill worſe, the cold has ſcarce ever abated. The winds, of five days out of ſeven, have been in ſome point of the north. On this day, (22d of July), we have a great breeze of N. north-weſt wind, with a deluge of rain; and are creeping over a coal fire, when, at other times, we had difficulty to wear our clothes.

'Such a ſtate of weather, you may readily ſuppoſe, muſt greatly affect our crops, which, in this county, are generally oats and beer, with a conſiderable proportion of potatoes. About twelve or fourteen miles to the north of us, there is ſome wheat ſown. Some of the gentlemen farmers have begun the turnip huſbandry; but neither of theſe two laſt are in any great quantity.

'The ſtalks of our oats and beer, particularly on light dry ground, have riſen to a ſufficient height; but, in all ſoils, ſo far as I have obſerved, the crop is thin, and moſt extraordinarily infeſted with annual weeds, of almoſt every ſpecies; and, what is ſtill worſe, ſome people who were at the pains to examine, have found the numbers of grains up-

on the ſtalk greatly deficient of the uſual quantity. In going through a field, and taking a ſtalk out of each ridge, as they went along, and opening the ſocket, or hoſe, as it is called, when the number of grains are all formed, and juſt ready to appear, they have found the average number to be only from twenty to twenty-five upon the ſtalk, inſtead of from forty to ſixty, as in tolerably good years. And unleſs the weather, from this time, becomes uncommonly dry and warm, it is not expected that we can have any ſhearing till towards the end of September. There may be ſome few dry warm ſpots ready ſooner; but it does not appear that Harveſt will be general before that time; for the moſt part of the crop is but juſt beginning to ſhoot, and ſome of it, within my knowledge, will not ſhoot for a fortnight at leaſt to come.

'The potato crop, upon which the ſubſiſtence of the country at large now ſo eſſentially depends, and which, in an eſpecial manner, depends, as laſt year, on a dry, warm ſeaſon, muſt of courſe be far behind, and very deficient. In good years, we have abundance of potatoes fit for uſe in the open fields, by the firſt of Auguſt. It is only in ſome few places that they are yet beginning to bloſſom. The weather has alſo had an inauſpicious effect upon the paſture and ſown graſs. The common natural paſture is neither in ſuch quantity, nor of ſuch a nutritive quality as in drier ſeaſons; and the ſown graſſes are in general thin.

'Yet, notwithſtanding this gloomy aſpect, there is no want, nor fear of want, felt. There is plenty of the beſt meal to be had for 11d. the peck, by retail. Beer, though a very deficient crop laſt year, is ſcarcely ſaleable; and moſt people are yet eating of laſt year's potatoes. The amazing quantity of laſt year's crop of potatoes, which were of the beſt quality, has been the ſole cauſe of all this cheapneſs and plenty. Laſt year they were ready by this time, and afforded an early reſource. The greateſt part of the people who had occaſion to buy oat meal, had no money to give for it; and they had potatoes during the whole ſeaſon almoſt for nothing. Hence, there was a greater ſaving in the conſumption of oats and beer, than uſed to be when money was plentier, and there were fewer potatoes. In ſhort, the unuſual quantity of laſt year's crop of this root, hath had more effect in lowering the price of grain, at leaſt on this ſide of the county, than all other cauſes put together.

'Black cattle and ſheep are uncommonly high. You could not have got a lean cow, hereabout, and in Galloway, to lay upon the graſs at May, for leſs than from ſix to ten guineas; and theſe cows, at an average, when as fat as they can be, would not weigh much more than twenty-four ſtones Engliſh. Our ſmall moor ſheep, of two years old, which, when fat, will not exceed thirty-ſix pounds Engliſh, are giving from 15s. to 20s. a piece. This relative proportion betwixt the price of grain and cattle, is contrary to all former experience. They uſed, almoſt invariably, in former times, to be regulated by one another. 'Down horn, down corn,' *& vice verſa*, uſed to be the rule. The effect of laſt year's potatoes on the crop, and the great deficiency of keep

for

for cattle in the 1799 and 1800, may in ſome meaſure account for the change. A ſhort time will perhaps reſtore them to their proper and natural level. Grain is too cheap, and butcher meat greatly too dear. Both are unfavourable to the farmer and grazier, and the latter uncommonly ſo to townſpeople. Now that rents, public burdens, and the price of labour, are all near double, ſome of them more than double, it cannot reaſonably be ſuppoſed, that the farmer can afford his grain at the ſame price he could have done even eight or ten years ago. The grazier, again, from the exorbitant price of ſtock, muſt have double capital, pay double intereſt, and is, of courſe, expoſed to far more riſk and expence; while, on the other hand, all annuitants and ſtipendiaries; all merchants and manufacturers, find the very high price of butcher meat a moſt intolerable grievance. It ſeems, therefore, an important *deſideratum* for all parties, that grain and meat ſhould be brought nearer to a level than they have been for ſome time paſt.'

Mid-Lothian Quarterly Report.

Considering the ſevere froſt, and ſucceſſive falls of ſnow between the 12th and 19th of May, which was frequently ſo deep, that it was not diſſolved before mid-day, even in low ſituations; together with the hitherto coldneſs of the ſeaſon, and hoar froſt often during night; it is a matter of ſurpriſe that the crops ſhould look ſo well as they do. This ſeems only to be accounted for by the goodneſs of the ſeed-time, and being exempted from daſhes of rain, which chills the roots of plants, and uniformly does harm.

In bulk, however, the crops are above mediocrity; but at preſent from a fortnight to a month behind, according to the lowneſs or altitude of the ſituation. Whether their produce will be in the ſame ratio with their apparent bulk, muſt depend upon the mildneſs, dryneſs, and ſunſhine of the ſucceeding month.

Many fields of barley, upon thin, cold-bottomed land, fell off a few weeks ſince, but have rather recovered of late. The pea and bean crops are in general getting too much to ſtraw; the former have only begun to bloom within the laſt ten days, and are a great height; the latter are ſtill blooming. The firſt blooms have begun to blacken, but few pods are yet to be ſeen.

The hay harveſt is far behind: it is little more than well begun, and the crop middling.

The grain markets have a very heavy ſale. Wheat, from 30s. to 36s. Barley, from 18s. to 21s. Oats, from 12s. 6d. to 15s.; very few reach 16s. Beans and Peas, from 15s. to 17s.; all *p.* Linlithgow boll.

Monopolizers and foreſtallers are now never heard of. They are at reſt—and peace be with them!

The butcher markets are ſtill high. Fat cattle from 9s. to 10s *p.* ſtone Dutch, ſinking the offal.

The demand for cattle to England is very conſiderable, and likely to increaſe.

Wedder hogs have ſold at 25 *per cent.* more than laſt year, and 100 *per cent.* or double what they uſed to do eight and ten years ſince; that is, the ſame ſtock which ſold at 16s. laſt year, brought 20s. this ſeaſon, and others in proportion.

At Linton market, there were between twenty and thirty thouſand hogs, but no wedders. Thoſe who wiſhed to purchaſe the latter, were obliged to content themſelves with the former: they went moſtly to the eaſt and ſouth country. The north country merchants declined giving ſuch high prices, reſerving themſelves to purchaſe lambs in their place. From the goodneſs of the lambing ſeaſon, lambs have been plenty, but of inferior quality, owing to the mothers having, at times, been pinched in their food; but they have ſold at prices far beyond thoſe that were fed in incloſures for the butcher, in proportion to their weight and condition. Indeed, they have ſold at much the ſame rate with the hogs; that is, about one fourth higher than laſt year. ——*July* 23.

ENGLAND.

Letter from a Scots Farmer, on a Tour through England, dated London, June 26th.

'I HAVE hitherto been prevented from writing you, my way of travelling not admitting much leiſure for ſuch an occupation. Little occurred worth obſervation, till I paſſed Newcaſtle; betwixt which place and Darlington, the country is rather indifferent; but, from Darlington to York, the ſoil is very fine, and the fields completely incloſed; though, in my opinion, upon too ſmall a ſcale. The country is alſo full of thriving villages, and well wooded. York is a neat city; and the river Ouſe, which paſſes this place, is navigable for a conſiderable way. Left York for Leeds on the top of a ſtage coach, and enjoyed a moſt agreeable view of the country. The hay crop, through the whole of this diſtrict, is very light; and the ſoil appears moſtly incumbent upon limeſtone. The drill huſbandry ſeems to be little practiſed in Yorkſhire; indeed, I have ſeen only two drilled fields ſince I left Northumberland, and theſe far from being well executed. Crooked ridges are very common, and three-horſe carts, or waggons, in general uſe. The driver ſpreads the dung from the top of the carriage, which is afterwards reſpread by women; then ploughed down, and the ground ſown with turnips broadcaſt.

'Leeds is an irregular town; but much buſineſs is done here in all the articles of woollen manufacture. Set out for Newark in Nottinghamſhire, by the way of Ferrybridge. Many extenſive lime works are upon

on the road ſide, and the burning goes on in an expeditious manner. In ſome of the quarries, ſeven or eight kilns, all put up in a temporary way, may be ſeen; and they are filled with ſtones, immediately upon being quarried. Betwixt Ferrybridge and Doncaſter, the face of the country is good, and cultivation carried on judiciouſly; further ſouth, the ſoil is rather mooriſh. On entering Nottinghamſhire, the ſoil altered much, being generally of a dry nature, on a gravelly bottom, and under decent management. In this tract, I ſaw ſeveral plantations of hops. After paſſing Tuxford, the country becomes very fine; is all incloſed and interſperſed with gentlemens' ſeats. In the neighbourhood of Newark, are rich extenſive meadows, carrying a heavy crop of graſs. Went next to Peterborough, where the ſoil is of a white ſandy loam, or a flinty gravel, and the land curiouſly cultivated; large baulks being left in many places betwixt the ridges, which is not only a waſteful practice, but prevents good ploughing effectually. About Huntingdon, the land is ill cultivated, and moſt irregularly laid out, though the ſoil is fine, and mixed with ſhells. They have a practice, here, of folding cattle and ſheep on the fallows, from 5 o'clock in the afternoon to the ſame hour next morning, which muſt be exceſſively injurious to the ſtock. Went from this to Cambridge: the land moſtly unincloſed, and under a bad ſyſtem of management. From Cambridge to Bury St Edmonds, through Newmarket, the country continues open, the ſoil very barren; but might be improved by incloſing, and good cultivation, as it would anſwer the turnip huſbandry very well. Paſſed Mr Young's at Bradfield-Hall, which is a fine looking place; but I am ſorry to ſay, that his farming is as bad as any I have ſeen in England. Through Eſſex, all the way to London, I viewed one of the fineſt and richeſt countries that I ever ſaw; and, till within a few miles of London, the cultivation is of a ſuperior caſt. Land is alſo moderately rented; and I ſhould like better to have a farm in this, than in any diſtrict examined. London affords a ready market for all kinds of produce: Manure can be got in abundance, and upon eaſy terms.'

Lincoln Quarterly Report.

Our crops, in general, promiſe to be good; and if drought and heat follow, we may expect that they will turn out productive. Some of the heavy clays have ſuffered from the wetneſs, and the hay crop is much lighter than uſual.

Wool is good in quality, but does not get ſuch a briſk ſale as was lately expected. Of what is ſold, the average price may be about 30s. per tod of 28 lb. avoirdupois.

The ſowing of turnips is juſt finiſhed; thoſe firſt put into the ground are coming away well, and have a blooming appearance. The feeding paſtures are ſcarce of graſs, which may be attributed to the exceſſive coldneſs in the firſt of Summer. Beef 8s. per ſtone, ſink.—*July* 12.

Letter from a Farmer near Wakefield, July 13.

'The grain crops, in this diſtrict, have much improved ſince the rain, which has fallen gradually (though partially) theſe three weeks. I believe we have had leſs, ten miles round Wakefield, than any other part of the county. However, our barley, beans, and oats, have got a good length, and promiſe to be bulky, and perhaps productive, if the weather ſhould change to be warm and kindly for feeding the grain: But it has been, and ſtill is, ſo very cold, that the harveſt muſt be much retarded; and late harveſts are ſeldom either very productive, or the grain fine in quality. Wheats are rather thin upon the ground, eſpecially upon clay and wet ſpungy ſoils. The weather was ſo very dry in May, with ſtrong froſts at night, that they could not tiller; therefore, with us, I think, they will be below an average crop. Our turnips are very promiſing, both drilled and broad-caſt. The cool ſhowery weather ſuits this plant well, and they are getting hoed and cleaned very faſt. Much of this root is ſown, as the ſeaſon was particularly favourable for preparing the fallows. They are likely to be a valuable ſubſtitute for hay, the greater part of graſs meadows and clovers being ſhort and light in the extreme; in conſequence whereof, old hay has got up to 10d. and 11d. per ſtone of 14 lb. Our paſture graſs is very ſhort alſo, and the weather ſo cold, that, notwithſtanding the rains, it makes a very ſlow progreſs. Lean ſtock, therefore, is upon the decline, but fat beef and mutton continue very high. Beef 8s. to 8s. 6d. per ſtone of 14 lb.; Mutton 8½d. to 9d. per lb.'

Letter from a Gentleman near Stafford, July 14.

'I was lately in London, and, on my way to and from that city, obſerved, that the major part of the farmers had adopted the uſe of the new implements of huſbandry, which, I make no doubt, will ſoon come into general practice. The good cultivation of the lands appeared to offer a moſt pleaſing proſpect of abundant crops. The weather, for theſe three weeks paſt, has been very changeable, attended with frequent ſhowers of rain, which have greatly protracted our hay-harveſt. As yet, I have not begun, being fearful of undertaking ſuch a hazardous work till the weather is more ſettled; though it muſt not be deferred much longer, or our hay and corn harveſts will claſh together. The corn market has lately been much on the decline. At laſt market, wheat ſold from 10s. 6d. to 11s.; barley 5s. to 6s.; oats 3s. to 3s. 6d.; beans 5s. to 6s. 6d. per buſhel of 38 quarts. Cattle and ſheep ſtill keep high; beef and mutton from 7d. to 8d.; veal 5d. to 6d.; bacon 10½d. to 11d., all per lb. Lambs in general, in this county, have been very plentiful. From 70 ewes I had 130 lambs ſheared, though I loſt upwards of 20. Some of my Dorſet ewes have already, ſince Chriſtmas, brought forth a ſecond time. The price of wool is greatly advanced. I ſold mine this year for 32s. per tod of 30 lb.; and lamb-wool at 10d. per lb. You will obſerve, mine is moſtly of the ſtrong, coarſe ſort;

Fine

Fine wool, from the ſheep fed in Cannock Common, brings 25s. per ſtone of 15 lb. The rains we have had ſince the beginning of June, have cauſed plenty of keep on the dry uplands, though frequently attended with exceſſive cold. A warm ſun is now greatly wanted, to ripen the corn; and ſhould not an alteration ſoon take place, I conclude, we ſhall have a late harveſt—but man muſt depend upon an allwiſe Providence. My Swediſh turnip, in general, has come up very well, though the fly has made great depredations. When in London, I purchaſed a drill for ſowing turnips, and a hand-expanding hoe; but, as they did not arrive in time, my ſervant ſowed the ſeed in the old-faſhioned way of broadcaſt. The crop is hoed in the uſual way, by the hand, which is very tedious and expenſive, and my new implements are laid aſide till another ſeaſon.'

Letter from a Scotiſh Farmer now in London, July 14.

'The corn crops, where I have been, in Middleſex, Hereford, Bedfordſhire, and Eſſex, are good, particularly the wheats, beans, and peas. Few good oat fields are, however, to be ſeen in Bedfordſhire. The hay is univerſally bad; indeed, not half a crop; and many fields round London are ſtill uncut. They are allowed to ſtand, in hopes of improving; but, though there are favourable rains, yet, owing to the attendant cold, they do not ſeem to make much progreſs. Old hay is now ſelling at above 7l. per load. In Eſſex, they are, at this time, ſowing turnips; and a conſiderable part of the crop of peas, which are carried green to the London market, remains to be removed from the fields intended for that root. Some of the barley fields appear blighted. Rye is the only grain that ſhows any ſign of harveſt, as the wheats are not yet changing colour.'

Yorkſhire Quarterly Report.

At this time of the year, the hay ſeaſon is uſually in an advanced ſtate; but very different is our report at preſent. In conſequence of the drought in the Spring months, attended by ſuch unuſually ſevere froſts, the graſs in moſt places is in a very backward ſtate of growth; the meadows and paſtures, on cold ſtrong ſoils, have but juſt begun to take on any growth at all; and it is remarkable, on the *better* ſoils, that the crop of graſs is thin and unpromiſing; ſo that, on the whole, the produce of hay is likely to be very deficient: Old hay is, accordingly, much advanced in price, and is now ſelling at 6 to 8l. per ton. The clover is thin and backward; ſome fields are cut; but the weather at preſent is unfavourable to their drying.

The crops of wheat much exceed the promiſe of the Spring; many are very full eared, and not unlikely to yield a ſupply equal to that of the beſt years. Barley is not generally ſo good; yet there are many fine crops. Oats are much the ſame; and beans an average crop.

Much of the rape crop has been damaged by the frosts; and very few full crops of flax. The young clovers, and other growing seeds, appear to recover after the late showers. The fruit, and even forest trees, have suffered material injury also.

A degree of curl appears among the potatoes; so that they are not likely to admit of a comparison with the crop of last year, either in quantity or quality. Much less ground than usual has been planted with this useful root, owing to the very low prices of last crop. Old potatoes are now selling at 6d. per peck—young ones at 3d. per lb.

After a favourable fallowing season, the turnips have been sown in excellent order; yet the present state of their growth, by no means comes up to our expectations. Very few fields of this root are hoed; yet, from the frequent rains, the hope of a good crop may be reasonably entertained. The summer-fallows are in great forwardness: *Lime* has been very liberally applied to them as a manure.

Best wheat is now selling at 9 to 10s. Oats about 2s. 6d. Beans 5s. per bushel of Winchester. Wool, though very high last year, is still higher now, and is said by many to be much too high for the state of the trade. Prices, from 12 to 18s. for long; and from 16 to 25s. per stone of 15lb. for short wool of the growth of this county.

Sheep and cattle remain at high prices; though yesterday, at Wakefield, those of fat cattle declined considerably. Beef and mutton are about 8d. per lb.; veal 7d. The best horses, for saddle and draught, are extremely dear.——*July* 15.

Letter from a Farmer in Wales, July 16.

'In this part, we are now in the middle of our hay harvest; but the weather, for the last four weeks, has been very untoward for such work; few days without rain, which keeps us much behind; and little of the hay is yet carried. Owing to the cold and backward Spring, the early grass is a light crop; but what is still uncut has a better appearance; and, if the weather takes up, we may still get it together before corn harvest commences. At present, that period has every appearance of being distant; and unless there is a great change in the weather, it will be the middle of August before our earliest corn will be fit for the sickle. The barley and oats look well, as also the beans and peas. The wheat presents a great bulk of straw, but has not so promising a look as the other grains. On the best land, it is all flat on the ground; and, where it stands, the ears do not fill well, having had a bad blooming time. Potatoes look well, as also the turnips; but our orchards have missed, particularly in low situations. It is remarkable, that, in high exposed grounds, the severe frosty nights we had in May, had not the same effect as in places by the sides of rivers. Our corn markets are still dull, and a considerable quantity of both wheat and barley remains unthrashed. The additional duty on malt, put an entire stop to the sale of barley in this part; and, as no barley bread is now used, (the price of wheat being low), we with difficulty find a market for it. Some who sent it to Bristol, have got from 3s. 6d.

to

to 3s. 9d. per Winchester bushel. Cattle still hold their price, as also sheep and pigs; and, of course, all kinds of butcher meat remain very dear. Beef, mutton, and lamb, from 7d. to 10d. per lb.; veal, from 6d. to 8d.; butter lower, 9d. per lb.; but cheese still dear. Wool, at the beginning of the season, sold very high; but sales are now made at reduced prices."

Northumberland Quarterly Report.

From the date of the last report to the beginning of June, the weather continued remarkably dry and cold. About the middle of May, we had, for several days, very hard frosts, with repeated showers of snow. On the 17th, it was three inches deep, with ice half an inch thick; and the frost was so very intense, that fruit of all kinds was mostly destroyed, the shrubs despoiled of their flowers, and several forest trees, as the beech, chesnut, oak, ash, maple, &c. stripped of their foliage. The clovers were materially injured, and vegetation of all kinds considerably checked; seedling trees were nearly all killed; and so much damage from frost was never experienced at that season. Towards the latter end of May, the oat crops, on light dry soils, were visibly declining; and on strong loams, a portion of the barley seed did not vegetate until the rains came, on the 3d and 5th of June, which will make this crop full of greens, and, of course, unproductive. The wheat crops are, in general, looking healthy and well; but the earliest being now only in bloom, and many spring-sown wheats only shooting, the harvest must be late: and this, I am afraid, will be the case with every other kind of grain; which may reasonably be attributed to the continual cold weather all through the Summer to this period. But if a change of favourable weather takes place, and a good harvest succeeds, I think we shall, on the whole, have a fair average crop; and, from the appearance of the stack-yards, there seems to be a sufficiency of old corn to supply the consumption to the usual time of thrashing.

Turnips were never sown on land in a better state to receive them, as the dry weather was peculiarly favourable for the fallows, and the rains came in due season to give a sufficiency of moisture, so that the seeds vegetated immediately: Yet, with all those advantages, the plants are not making that progress which might be expected, entirely owing to want of warmth.

To the same cause, and the severe continued frosts aforementioned, may be attributed the very scanty hay crops, both clovers and old meadows; and which has caused a considerable advance in the price of hay; in some places, it is got as high as 6 or 7l. a ton.

Our markets for lean cattle and sheep still continue high. At Yetholm fair, lambs of the long-wooled kind were sold from 21s. to 27s.; and of the Cheviot breed, from 10s. to 15s. A great number of the latter were bought, to take into Caithness.

The advance on wool has not been so great as was expected, from the high price of long-wooled skins in the Spring, which were sold at the rate of 15d. per lb. The present average prices seem to be 12½d. per lb. for long wool, and 15d. for short, or Cheviot wool.

[*In*

[*In the Account of the late* DUKE OF BEDFORD, *given laſt Magazine, it was ſtated, that a detail of his great Agricultural Concerns would be laid before our Readers, when facts were aſcertained by the inquiries we were then making. It is therefore with ſingular pleaſure we now preſent the following intereſting Communication upon that ſubject, tranſmitted to us by a worthy friend and neighbour, now upon a tour through England, who took the trouble of perſonally examining the whole lands formerly kept by the Duke in his natural poſſeſſion.*]

LETTER FROM LONDON.

'I would have ſent you the following, on my return from Bedfordſhire; but having been down in Eſſex, could not get leiſure to tranſmit it ſooner. It is the ſubſtance of what I was able to collect of the late Duke of Bedford's farming tranſactions, and may perhaps prove intereſting to your readers.

'The lands farmed by the Duke, amounted to ſomewhat more than 3600 acres, including the great park at Woburn. The park contains,

	Acres.
Paſture incloſed in paddocks	342
Open lawn	959
Plantation of evergreens	112
Ditto of young wood	137
Ditto of old wood	70
Ponds	33
Total of park—Acres	1653
Crawley Heath farm	575
Grange Meadows	145
Speedwell farm	323
Ridgemont farm	134
Mauldon farm	575
Prieſtly farm	232
Total	3,637

'The ſtock on theſe lands conſiſts of 66 work horſes, 42 work oxen, 64 dairy cows, 78 young cattle, 61 fatting oxen, 8 bulls, 2,233 ſheep, and about 700 deer. Of theſe laſt, 80 or 90 are of the red kind, common in the Highlands of Scotland, but larger in ſize than the fallow deer.

'*Speedwell farm* lies cloſe by the town of Woburn. The improvement thereof was begun about ten years ago, and the land is now in excellent order. This farm is all light ſoil, except thirty acres of ſtrong clay, which, when firſt fallowed, was laid over with old lime rubbiſh, at the rate of ſixty cart load per acre, and planted with cabbages. Theſe were

were given to cattle early in the ſeaſon, and the land ploughed and ſowed with wheat. The light ſoil has been all covered over with a kind of blue clay marl, which is near at hand, at the rate of ſixty or ſeventy four-horſe cart loads per acre. At the commencement of the improvements, the rotation obſerved was, 1. Turnips; 2. Barley; 3. Turnips; 4. Barley with graſs ſeeds. But that now followed is, 1. Turnip broad-caſt; 2. Barley with graſs ſeeds; 3. Paſture; 4. Hay; 5. Peas; and, 6. Wheat. The paſture this ſeaſon is good, notwithſtanding the drought, and its being heavily ſtocked in the Spring. The working ſtock conſiſts of ſix horſes and four oxen. All the light land is ploughed by two horſes, with the Norfolk wheel plough; but, on the clay ſoil, the common plough is uſed, in which they ſometimes yoke three or four horſes. The fences have been moſtly made new, conſiſting of thorns laid in two rows, one a foot above the other, on the bank of the ditch; have been carefully trained up, and are now good. The ſheep on this farm are all of the new Leiceſter breed, and are either fed off, or ſold for breeding ſtock. Turnips are ſown from the middle of June to the middle of July: If ſown earlier, they are apt to ſpoil in Winter. The Swediſh turnip, or roota baga, is much valued for Spring feed, as it ſtands the hardeſt Winter, without being hurt by the froſt. On this farm, in 1798, four poles of land produced 16 cwt. 3 qrs. 25 lb. of Swediſh turnip, which is equal to 33 ton 8 cwt. 3 qrs. 20 lb. per acre; and in 1800, the produce of one acre, ſown 23d June, and weighed the 25th March thereafter, was found to be 33$\frac{1}{4}$ tons, leaves and roots included.

'*Crawley Heath* joins the park on the oppoſite ſide to Speedwell, has been five years in hand, and is not yet completely improved. When entered upon, near 200 acres were in bad cultivation, and the remainder was a mooriſh ſoil, covered with ſhort heath, fern and broom. The worſt of the moor is planted with trees, which are not very thriving; and about 250 acres of it are improven. The improvement was effected by covering the heath, during the Autumn and Winter months, with from ſixty to ſeventy four-horſe cart loads of clay marl per acre, which is found on the farm; then breaking it up with the plough, fallowing it till the month of May, and ſowing cole-ſeed, which was eaten with ſheep early in Autumn. During the Summer thereafter, the land was ſown with broad-caſt turnips, which were conſumed by ſheep on the field; in the third year, with barley, or oats, and graſs ſeeds; and, for two or three years more, was depaſtured with ſheep of the South-Down breed. The new paſtures are good, even upon the improven heath, which is a light yellow ſand, and, when dry, is blown by the wind. This year, there is one field of white peas in drills, horſe-hoed, very good, and neatly managed; and another of drilled wheat, which may be conſidered as good upon ſuch light ſoil. Beſides the Norfolk ploughs, they have one, on this farm, which makes three furrows at once. The three beams are fixed to the axle of a pair of low wheels; and the ploughs, which are not otherwiſe

wiſe connected, lay the furrows over, each cloſe behind the heel of the one before it. This triple plough is drawn by two horſes; makes the furrows about four inches deep, which is as much as is neceſſary for turnips in this ſandy ſoil; and is managed by one man. As there is a want of ſtone, in this neighbourhood, fit for building, the ſtraw-yard dike, ſtables and cottages, of a new erected farm-ſtead upon the heath, conſiſt of clay only, are very neat, and ſeem to ſtand the weather without waſting. There was formerly a ſmall thraſhing machine upon this farm, but, as it did not anſwer the purpoſe well, is now removed. In ſome of the fields, are ſmall wooden ſheds, moveable like tents, for ſheltering ſheep in Winter. The roads acroſs the farm, and one to the park, are made with ſand, from ſcarcity of better materials. The fields taken into the great park are divided by double quickſet hedges, twelve feet aſunder, having evergreens and ſhrubs planted between; but neither the hedges nor ſhrubs are ſo thriving as the corn and graſs. This ſhows the natural ſterility of the ſoil, and how much it has been improven by cultivation.

'*Ridgemont farm* joins with Crawley Heath. It was entered upon, five years ago; at which time it conſiſted of old tillage land, moor and boggy ſoil. At preſent, it is only in part improved. This year, there is a large field of ſtrong ſoil, part of the old arable land, in fallow for the firſt time, on which they employ the old plough uſed in this county, drawn by four horſes in a line, having a very long head, a ſmall coulter ſet very upright, and a piece of iron called a *foot*, moveable like a coulter, and reaching down from the beam, near the fore-end, to the ſurface of the unploughed land, on which it ſlides like a foot, with the heel foremoſt, and keeps the plough from going too deep. This plough, and the clumſy way of uſing it, in breaking up rough land, is not of a piece with the other implements and management on the Duke's farms. The young hedges are all two rows of thorns, and carefully fenced with a paling at the top of the bank, and another on the oppoſite edge of the ditch. About 18 acres of the boggy land are now converted into a watered meadow, which may be conſidered as a great improvement.

'Near the park, or home-farm, is *Grange Meadows*, conſiſting of 120 or 130 acres, all in irrigation. Forty acres of this farm were formerly good arable land, bearing wheat and beans, and have been converted into watered meadow, at a great expence. They do not, however, appear to be more valuable now than before, as there is a want of water for a proper ſupply of the whole meadows, though all has been collected that could be brought to the level, even from a great diſtance. Twenty acres were good paſture land, and have not improved much by irrigation. Other twenty acres were of ſuch a boggy nature, as to be impaſſable by cattle, and had never been charged with any rent; the complete drainage of which may juſtly be conſidered as a great improvement. The remainder was hay meadow. The watered meadows are uſually depaſtured with ſheep, from the middle of February to the firſt

of

of May; but as they have been ſometimes found prejudicial to that kind of ſtock, they have been leſs uſed for that purpoſe this ſeaſon than in former years. After the Spring feeding, the meadows are left for hay, which is always ſoft, and of an inferior quality to the common meadow hay. The aftermath is depaſtured by cattle.

'*Mauldon farm* is ſituated eight miles from Woburn. It has been only five years under improvement, and has ſtill a great part of both heath and bog in a natural ſtate. This farm originally conſiſted of arable land, flat-lying boggy fields, and moor covered with heath and fern. The moor, now improven, is of the ſame kind of yellow ſand, as that at *Crawley Heath*. It has been *clay-marled*, and managed much in the ſame way as the other farms. Forty acres of the marſhy land have been levelled and converted into watered meadow, in complete irrigation; and other parts of it have been brought into tillage, by paring and burning. There is a large field under that operation this year. The paring is performed by a plough, with a very broad ſhare, drawn by two horſes. All the drains and ditches are large, and executed in a complete manner. The new ſowed paſtures are good; and on this, as well as the other farms, they ſow a conſiderable quantity of both Winter and Spring tares, for cutting for the labouring horſes, and for early Spring feed for ſheep. The Winter tares are commonly ſown after wheat, as ſoon as it is cut, in Auguſt or September, at the rate of 2 or 2½ buſhels per acre; are generally fit for folding with ſheep by March or April, and the firſt eaten part will fold a ſecond time. After the tares are cut or eaten off, the land is ploughed, prepared for, and ſown with turnips, in June or July. A few were ſown in drills laſt year; and, from the ſucceſs of that experiment, there is a large field ſown this ſeaſon, according to that mode. The drills are handſomely made up and finiſhed. On this farm, about 200 acres are in corn, 100 in turnip, and 220 in paſture and watered meadow, the remainder being ſtill moor. From eleven to twelve hundred ſheep, of the South-Down breed, are uſually kept upon this farm; and there are at preſent ſome very fine two-ſhear wedders, which rival the handſomeſt Leiceſter ſheep in figure, only a little longer legged. It may be worth noticing, that 400 ewes, this year, produced 520 lambs; and that the 40 acres of watered meadow kept them during the Spring feeding, being at the rate of ten ewes, with their lambs, per acre.

'*Prieſtly farm*, which is two miles from Mauldon, has been only a few years in hand, and is very little improven. Mr Elkington had been employed to drain it in his manner; but as he did not make it complete, it is now draining upon another plan. The ſcarcity of ſtones here, for filling up drains, occaſions that neceſſary operation on wet land to be both difficult and expenſive. In the park at Woburn, drains had been made and filled with ſloethorn and cuttings of hedges, twenty years ago, which are ſtill good, and running.

'The farm-offices at the park, by the town of Woburn, are all conſtructed in the moſt complete ſtyle; and the ſtables, cattle-houſes, and pig-

pigſtyes are ſupplied with water, by pipes carried through them. The ſheep-ſhearing room is very handſome, of a circular form, and lighted from the top; with pens and yards adjoining for the ſheep; and a ſteelyard for weighing them alive. Here are to be ſeen, ſtatues of the fat cattle, ſheep, and pigs, formerly ſhewn at the ſheep-ſhearings. In this ſuit of offices is a large thraſhing mill, made on Mr Meikle's beſt conſtruction, moved by ſix horſes or oxen; and in a houſe adjoining, are a corn and flour mill, which are wrought by the ſame big wheel as the thraſhing mill. In the flour mill are Mr Meikle's patent cylinder for ſheeling wheat, and another new machine for the ſame purpoſe. This machine takes off the ſkin, or bran, from the wheat very completely; but as the wheat muſt be wetted before the operation, and dried again previous to grinding, a great deal of trouble is occaſioned, and the grain may be ſpoiled, if proper attention is not beſtowed. At the Abbey is a beautiful dairy-houſe, built in the Chineſe faſhion, with painted windows, and furniſhed with jars and other veſſels for the milk and cream, all of the fineſt China.

'At the ſheep-ſhearing in June laſt, beſides a few Spaniſh ſheep, there were ſold 500 clipped ewes, without their lambs, for 1562l. 8s.; forty of them being of the Leiceſter breed, and the others South-Downs. A lot of Leiceſters brought 4l. 8s. per head; a lot of 20 South-Downs, once clipped, or gimmers, ſold for 87l. 3s.; and 20 Leiceſter ewes have been ſold ſince for 100l. The cattle on the home-farm, or park, and meadows, are of the Devonſhire breed; and thoſe on Speedwell, of the Herefordſhire breed, which are reckoned the beſt milkers, and as good feeders as the Devons. There were 52 cattle ſold; the Devonſhire cows run from 12l. to 18l. per head; 5 Hereford cows to 26l. per head; and ſome two-year olds, of both breeds, to 22l. per do. There were let for the ſeaſon 60 tups, from 10 to 70 guineas a head; 50 of them Leiceſters, and 10 South-Downs. Laſt year, the wool of the Leiceſter ſheep ſold at 1s. 3d. per lb., the ewe fleeces weighing about 5 lb. each; and that of the South-Downs at 1s. 9d., the ewe fleeces being nearly 3 lb. each. In the park are a few Armenian cattle, which ſeem to be a ſpecies of Buffalo. They are of the ſize of Highland cattle, very handſome, have fine ſhort hair, of a dun colour, and a dark ſtroke along the back, like mules. One bull and two cows are of the full breed, and one cow of a mixed breed. All the cows have calves by a Devonſhire bull, which ſhew very little of hunch on the ſhoulder, the only prominent mark of difference betwixt theſe cattle and ours. The bull has a larger hunch than the cows.

'Beſides the watered meadow already mentioned, the Duke made about one hundred acres, below the village of Crawley, from bogs worth very little, which now ſet at 20s. per acre; beſides what he made for ſundry of his tenants. Great improvements have taken place upon the roads and ſtreets about the town of Woburn; and common-ſewers are made for collecting the waſhings, &c. from the ſtreets and houſes, and preſerving them for manure to the park or meadows.'

Norfolk

Norfolk Quarterly Report.

The weather, during the whole ſeaſon, has been extremely cold; but, owing to the plentiful and timely rains, the wheat and barley crops are very promiſing; indeed we may ſay they are luxuriant. Rye is alſo good; but in this part of the country very little is now ſown. Oats are certainly deficient, particularly in the fens; owing chiefly to their coming up at two growths, which will occaſion ſome part of them to be ripe before the other part is in the ear. In the high lands they have alſo ſuffered; and, upon the whole, it is generally thought, this grain will not exceed two thirds of an average crop. Beans and peas look well, and want nothing now but fine weather. Rapeſeed, what remains, is pretty fair; but ſo many hundreds of acres were ploughed up in the Spring, that, of courſe, even if well got, the crop will be very ſmall.

This is the caſe alſo with the turnip crop: A great number of acres were ploughed up of thoſe which were ſown early; but now, thoſe which were allowed to ſtand, are thriving; and, upon the whole, this root may be ſaid to have a promiſing appearance: A great number of acres were ſown, and the plants are ſtrong and healthful.

The farmers are now very buſy in ſecuring their hay; the crop of which is univerſally light, the natural, as well as the clovers, ryegraſs and trefoil. What is already got, is in very good condition; but there is full one half ſtill unſecured.

Warm weather, with a *good* ſun is ſadly wanted; nothing can ripen with this cold weather. The harveſt will be very backward; and when this is the caſe, the grain is ſeldom well got; and even with *fine* weather, nothing can be done for a month from this date. We are led to think, that a good deal of the wheat which is backward, has ſuffered by mildew, eſpecially in the fens, where alſo ſome part has been beat down; but, in the uplands, neither wheat nor barley are hurt. Our markets are pretty well ſupplied with wheat, beans, and oats, which meet with many buyers.

Letter from London, July 21.

"The general appearance of the crops, in the vicinity of the metropolis, is very favourable; but the harveſt will be late. The ſevere froſt, which we had in the end of May, does not appear to have hurt the corn crops; but the fruit, in the cyder counties, has ſuffered greatly. Potatoes, which at firſt ſeemed nearly deſtroyed, are quite recovered; and we have had an abundant ſupply of new ones, of good quality, for a fortnight paſt. In Middleſex, the beans and wheats are very luxuriant, but will be late in harveſting. The hay crop is, in general, a very light one, owing to the long drought in the firſt of the ſeaſon; and what little there is, will be much damaged by the continued rains we have had for a month paſt: There is ſome not yet cut, and a good deal out in the field in very bad condition. In conſequence, the price of old hay has advanced from five pounds to ſeven guineas and a half

per

per load; and ſtraw, from a ſhort ſupply at preſent, is ſo high as nineteenpence per truſs.

'In Eſſex, the wheat looks very fine; the oats and barley are alſo good; beans not ſo ſtrong as in Middleſex. The harveſt will be late. In Kent, upon their light ſoils, the ſtraw is ſhort; but, in general, the crops are fine, and earlier than in Eſſex. Some wheat and oats will be cut in ten days. Rye has been already cut. The appearance of the hops is not very favourable; in conſequence of which, the price is on the advance.

'The prices of wheat at Marklane have been fluctuating for two months paſt, from 68s. to 80s. per quarter, according to the ſupply of the day, or as the rumour of ſcarcity on the Continent prevailed.

'The ſupply from Kent and Eſſex is ſtill abundant. No importation of either wheat or oats of any conſequence. Some few ſamples of foreign wheat, in granary, are ſtill ſhewn.

'Monday's market produced a great ſupply of wheat, which ſold nearly at laſt week's prices; though it was a general opinion, that they would be higher, owing to the preſent unfavourable weather. From having a very ſhort ſupply of oats for ſome days, they were full two ſhillings higher. Barley and beans alſo have ſold dearer for two weeks paſt. The ſupply of cattle, ſheep, and lambs, at Smithfield, has been good of late; but prices are ſtill on the advance.

Notices to Correspondents.

The *Obſervations on Colonel Fullarton's Letter to the Board of Agriculture, reſpecting the beſt Mode of converting Graſs Land to Tillage*, tranſmitted by '*A Yorkſhire Farmer*,' are received. Due attention will be paid to this communication.

The *Obſervations on Leaſes*, and *A Plan for bringing the Waſte Lands in the North of Scotland into Cultivation*, ſhall be attended to.

A Letter from a Farmer in the County of Cumberland, concerning the Burning of Limeſtone, is under conſideration.

The *Deſcription and Plan of a proper Farm Steading*, will, if poſſible, appear in our next.

Various favours, formerly received, are neceſſarily poſtponed. We beg, however, that our correſpondents would in no caſe conſider the poſtponement of a paper as an evidence of its rejection.

No. XII. will be publiſhed on Monday, November 1.

ERRATUM.

In p. 334, 14 lines from top, for *improvements* read *improvement*.